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MACKENZIE VALLEY PIPELINE INQUIRY

Government
Publication

IN THE MATTER OF APPLICATIONS BY EACH OF

(a) CANADIAN ARCTIC GAS PIPELINE LIMITED FOR A
RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS
CROWN LANDS WITHIN THE YUKON TERRITORY AND
THE NORTHWEST TERRITORIES, and

(b) FOOTHILLS PIPE LINES LTD. FOR A RIGHT-OF-WAY
THAT MIGHT BE GRANTED ACROSS CROWN LANDS
WITHIN THE NORTHWEST TERRITORIES,

FOR THE PURPOSE OF A PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND
ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION,
OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE
PROPOSED PIPELINE

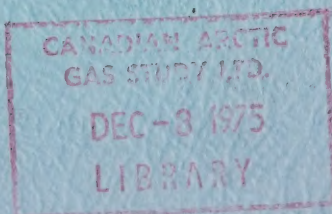
(Before the Honourable Mr. Justice Berger, Commissioner)

Yellowknife, N.W.T.

December 2, 1975.

PROCEEDINGS AT INQUIRY

Volume 94



APPEARANCES:

Mr. Ian G. Scott, Q.C.,
Mr. Stephen T. Goudge,
Mr. Alick Ryder and
Mr. Ian Roland for Mackenzie Valley Pipeline
Inquiry;

Mr. Pierre Genest, Q.C.,
Mr. Jack Marshall, and
Mr. Darryl Carter for Canadian Arctic Gas
Pipeline Limited;
Mr. Reginald Gibbs, Q.C.,
Mr. Alan Hollingworth &
Mr. John W. Lutes, for Foothills Pipe Lines Ltd.;

Mr. Russell Anthony &
Pro. Alastair Lucas for Canadian Arctic Resources
Committee;

Mr. Glen W. Bell and
Mr. Gerry Sutton, for Northwest Territories
Indian Brotherhood, and
Metis Association of the
Northwest Territories;

Mr. John Bayly
or
Miss Leslie Lane for Inuit Tapirisat of Canada,
and The Committee for
Original Peoples Entitle-
ment;

Mr. Ron Veale and
Mr. Allen Lueck for The Council for the Yukon
Indians;

Mr. Carson H. Templeton, for Environment Protection
Board;

Mr. David Reesor for Northwest Territories
Association of Municipal-
ities;

Mr. Murray Sigler for Northwest Territories
Chamber of Commerce.

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I N D E X

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WITNESSES FOR CANADIAN ARCTIC GAS PIPELINE LIMITED:

Alexander William Francis BANFIELD

William W.H. GUNN

Russell Alexander HEMSTOCK

Peter J. McCART

Ronald Daniel JAKIMCHUK

- Cross-Examination by Mr. Bayly (cont) 14204

Yellowknife, N.W.T.

December 2, 1975.

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. SCOTT: Mr. Commissioner, before Mr. Bayly begins, I wonder if I could raise a matter that developed yesterday in the hope that Mr. Marshall will be able at some stage to clarify it for us. It is not, I think, something that could be clarified by this panel.

In cross-examination yesterday at page 14077 Mr. Ryder asked a series of questions of Dr. McCart about blasting under ice and the consequences of that, and Dr. McCart indicated at line 6 on page 14077 and following, that he would prefer to see the blasting done during the summer rather than under the ice in the winter, and he went on to, on the following page, to deal with his preferences, particularly with respect to the Great Bear River. That appears to be inconsistent with the views expressed by Mr. Williams in cross-examination in Volume 38, page 4901 where he indicated affirmatively not only with respect to rivers generally but with respect to the Great Bear River that blasting -- that they would propose to do blasting there under the ice during the winter, apparently on the advice of their environmental people.

Now it may be that this conflict cannot be resolved by either one of them. I guess what I'm asking is, is Mr. Williams' view, which is the view set out in the application, still the correct view -- I shouldn't say "the correct view" --

1 is it still the company's view? Has it been amended or
2 altered, and if so, can we be advised what the precise
3 proposition now is with respect to blasting?

4 MR. MARSHALL: Mr. Scott,
5 we'll check that and advise you.

6 Sir, there is a matter that
7 I should raise before Mr. Bayly continues with his
8 cross-examination. I am instructed that there has been
9 a change in the location of the Gulf plant proposed for
10 Parsons Lake, which will require that the line from
11 the Parsons Lake plant to the gas pipeline be on the
12 south side of the lake rather than on the north side
13 of the lake. You may recall that when the application
14 was originally filed it showed the line running some-
15 what to the north of the lake.

16 Foothills in their material
17 showed the line running south of the lake. The plant
18 location, I'm led to believe, is not in the location
19 shown on the Foothills filing or in the Arctic Gas
20 filing, but it's at some different location. We will
21 have a map prepared and file it showing the location
22 of the plant and the new location for the line that
23 will connect that plant with the line.

24 Also, Shell has decided that
25 it wishes to construct its own gas plant in the delta,
26 and accordingly rather than a line from the Shell wells
27 to the Imperial plant, where the gas would be processed
28 and it would then enter the Arctic Gas pipeline, there
29 will be a Shell plant at the location of its well some
30 distance west of the Imperial plant, and then there

1 will be a line constructed by Arctic Gas from that
2 Shell plant that will connect to the Taglu plant, as
3 I understand it, and then continue with the alignment
4 as has been shown on the alignment sheets filed.

5 Sir, in due course there will
6 be alignment sheets prepared which will show these two
7 revisions, and I'll make them available to the Inquiry
8 as soon as they're available. I hope that next week we
9 can have a map which will show these so that we can give
10 a general indication of the locations of them.

11 Finally, sir, a definite
12 decision has been made in favor of a satellite communi-
13 cation system. Mention had been made previously that
14 that had been recommended by the consultants to Arctic
15 Gas. Arctic Gas has definitely decided to opt for a
16 satellite communication system.

17 Thank you, sir.

18 THE COMMISSIONER: Thank you,
19 Mr. Marshall.

20 MR. BAYLY: Mr. Commissioner,
21 with regard to the announcements that my learned friend
22 has made, we will certainly need some time to consider
23 those, and if we are to add those things to our
24 assessment in the delta phase, I trust that the applican-
25 ts will not stand on the rules with regard to notice,
26 as we find we are very pressed for time. The delta phase
27 is just around the corner and we have a new gas plant
28 and two new alignments that may have different or
29 different kinds of impacts on the physical and living
30 environment, which we will want to look at.

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ALEXANDER WILLIAM FRANCIS
BANFIELD,
WILLIAM W.H. GUNN
RUSSELL ALEXANDER HEMSTOCK
PETER J. MCCART
RONALD DANIEL JAKIMCHUK, resumed:

1 THE COMMISSIONER: Well,
2 I know it is just around the corner. That Delta
3 Phase will in fact begin the week of January 19th
4 so that gives all of you something like six or
5 seven weeks if you adopt the view that at Christmas
6 you may not be working to full capacity, that is
7 perhaps less than six or seven weeks available to all
8 concerned. In fact, the intention is to return
9 here on the 12th of January for cross-examination of
10 the Environmenta Protection Board and then the week
11 of January the 19th to go to Inuvik to begin the
12 Delta phase. Can anybody hear me, is this thing on?

13 MR. HOLLINGWORTH: I am
14 afraid I didn't hear you.

15 THE COMMISSIONER: Sorry,
16 well, I will repeat that.

17 The Inquiry will recommence
18 in the New Year on January 12th here in Yellowknife
19 for one week. At that time the Environment Protection
20 Board will, I understand, be available for cross-
21 examination. Then the Delta phase will begin the
22 following week, the week of January 19th in Inuvik,
23 continuing the week of January the 26th. There will
24 be no sitting the week of February 2nd, the Delta
25 phase will continue in Inuvik February 9th and the
26 week of February 16th. There will be no sitting the
27 week of February 23rd, and then the week of March
28 1st and the week of March 8th will be community hearings
29 in the Delta, returning to Yellowknife March 15th to
30 begin Phase IV. Ms. Hutchinson has these calendars and

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McCart, Jakimchuk

1 will give them out.

2 MR. HOLLINGWORTH: Well, sir,
3 I can certainly reassure Mr. Bayly that Foothills
4 at least is not going to stand on the rules too heavily,
5 but I will point out to him that the Foothills align-
6 ment has been south of Parsons Lake for some time
7 now and as far as the new alignments in the Delta,
8 this is something that I will have to look into and
9 also get back to the Commission on, but we are not going
10 to press Mr. Bayly too heavily if he finds himself
11 unable to prepare adequately within the time limits.

12 MR. MARSHALL: Nor will we,
13 sir. As Mr. Hollingworth points out, Foothills'
14 alignment has been south of Parsons Lake. I understand
15 insofar as the Arctic Gas line to the plant, there will
16 be a difference in the eastern portion of it because
17 the location of the plant has been moved somewhat,
18 but the western portion of the lines as between Foot-
19 hills and Arctic Gas are pretty much the same. So
20 that is something that has pretty well been known
21 to the Inquiry. Insofar as the Delta itself, there
22 would have been a gathering line, or some sort of a
23 line running from the location of the wells to the
24 Taglu plant in any event. It is now going to be
25 built by Arctic Gas rather than by Shell and there
26 will be an additional plant that will be owned by
27 Shell.

28 THE COMMISSIONER: Excuse me,
29 Mr. Marshall, I misunderstood you. You said that, that
30 what is going to be built by Arctic Gas rather than

Banfield, Gunn, Hemstock
McCart, Jakimchuk

1 Shell?

2 MR. MARSHALL: Well, sir,
3 originally Shell's intentions as I understood them
4 were to transport the gas, I believe, by an elevated
5 line to the Taglu plant which would be operated
6 by Imperial --

7 THE COMMISSIONER: Yes, that
8 is what I understood.

9 MR. MARSHALL: Now the --
10 it would have required some processing in order to
11 do that, and they have decided that it would be
12 preferable to completely process the gas to pipeline
13 specifications at that plant, at the location of
14 their wells and then deliver the gas to Arctic Gas
15 at the location of their processing plant and
16 therefore Arctic Gas would construct a line running
17 from the location of the Shell plant and
18 as I understand it from Mr. Hemstock, the alignment
19 would go from the location of the Shell plant to
20 the Taglu plant and from then south. It would be
21 an underground line --

22 THE COMMISSIONER: Yes,--

23 MR. MARSHALL: Rather than
24 an above ground line carrying partially treated gas,
25 it would be an underground line carrying chilled
26 gas.

27 THE COMMISSIONER: Okay,
28 thank you.

29 MR. BAYLY: Mr. Commissioner,
30 somebody will be informing the mad plan people that

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 there is another gas plant for them to assess.

2 THE COMMISSIONER: No doubt.

3
4 CROSS-EXAMINATION BY MR. BAYLY:

5 Q When we left off yes-
6 terday, gentlemen, I had read to you an excerpt from
7 guideline number four of the 1972 Pipeline Guidelines
8 and left that with you over night to think of, in
9 light of the request that you identify any areas
10 that you would be recommending to the applicant be
11 either restricted in their use or be areas that pipeline
12 should not go into.

13 Now, Dr. Gunn has identified
14 one, that being the Old Crow Flats, and I would ask
15 the panel in general if there are other areas that
16 you have so recommended or would be recommending in
17 the future?

18 WITNESS GUNN: I can tell
19 you of two other areas that we have mentioned to
20 Arctic Gas in that connotation. One of them is
21 Yukon Flats which is in Alaska, and therefore the
22 guidelines as I understand them do not apply to that.
23 The other one is the series of coastal lagoons along
24 the Beaufort Sea coast. We were asked to look at that
25 and we have advised against a pipeline going along
26 the coastal lagoon route.

27 THE COMMISSIONER: Would that
28 relate only to the offshore route, your last remark,
29 the coastal lagoons and the Beaufort Sea?
30

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McCart, Jakimchuk
Cross-Exam by Bayly

1 WITNESS GUNN: And in Canada,
2 sir. Was that your question?

3 THE COMMISSIONER: Sorry. You
4 said that the coastal lagoons, Old Crow Flats and Yukon
5 Flats were those that fell within those special areas
6 in the guidelines.

7 A Right.

8 Q There's the prime route
9 along the coast that Arctic Gas wants to use. One of
10 the alternate routes they rejected was the offshore
11 route.

12 A There are really two
13 offshore routes, sir. One is some distance offshore,
14 and one is very close inshore between the actual coast
15 and the various spits and lagoons following the coast.

16 Q I see. Well, would your
17 concern about the coastal lagoons be affected by the
18 prime coastal route that we are now considering?

19 A Only indirectly, sir.

20 Q If they elected for that
21 offshore route that is near the coast, then they might
22 well have been involved with these coastal lagoons,
23 is that the situation?

24 A Yes sir.

25 MR. BAYLY: Q Now that, Dr.
26 Gunn, is with regard to pipelines only, I take it,
27 because there are staging areas that are in the vicinity
28 of the coastal lagoons for the stockpiling of material
29 and for campsites, etc.

30 A Right, those are the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 indirect relationships with the prime route pipeline.

2 Q So you haven't recommended
3 that those indirect relationships, as you called them,
4 be excluded from this area, but that the pipeline
5 facility itself be excluded.

6 A Perhaps I should relate
7 the events that occurred in considering the staging
8 sites. The first time we heard them discussed, there
9 were plans for about 10 staging sites along the coast,
10 with very little indication that we could see that
11 environmental impacts of concern to us were considered.
12 They were simply possible engineering sites. We reacted
13 to that and pointed out some of the problems involved
14 and as a result of this interaction, the number of
15 sites was reduced from ten to five, including one at
16 Prudhoe Bay, and of the other four two were sited at
17 Dew Line sites on our particular recommendation that
18 they select sites that had already been disturbed.

19 Q So you're satisfied that
20 by cutting down the number of sites into half of what
21 it formerly was, that the impact is then one that
22 you would say is acceptable, in any event.

23 A It's -- we considered it
24 to be substantially decreased, provided that the proper
25 precautions are taken on the others, we feel it is
26 acceptable. We have some concerns about Demarcation
27 Bay and that particular site is being looked at more
28 carefully now.

29 Q Yes. Now, in response to
30 this question that I have asked, are these in a sense

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 stronger than recommendations, or are these sort of
2 super recommendations, because what I had asked was the
3 identification of areas that you had advised the
4 applicant that they should stay out of. There are
5 certainly other areas where you have given them
6 recommendations that there should be certain procedures
7 followed, one of those being the one I referred to
8 yesterday where a ship should come in at right angles,
9 for example, and where they should avoid Ptarmigan
10 Bay. So these would be even stronger than that kind
11 of recommendation?

12 A Yes, in the context I
13 gave you they would be stronger, yes.

14 Q And you've talked about
15 the coastal lagoons and staging areas. There was, at
16 one point, and there is a report that refers to this
17 in the applicant's materials, the thought of putting
18 in liquification of natural gas plant in the Babbage
19 Bite area, and did you make any specific recommendations
20 about that when you were talking about -- asking them
21 to avoid the lagoons?

22 A I don't recall our
23 being asked to respond to that particular question, but
24 there's no doubt that if we were asked we would be
25 against it.

26 Q Yes. What about the
27 other environmental consultants? Were there areas that
28 you, Dr. McCart, or you, Mr. Jakimchuk, or Mr. Hemstock
29 or Dr. Banfield recommended, be areas excluded similar
30

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McCart, Jakimchuk
Cross-Exam by Bayly

1
2 to the ones or similar to the framework that's set up
3 in that guideline No. 4?

4 WITNESS JAKIMCHUK: I can
5 comment on that. Very early on, we identified areas
6 that we felt were particularly sensitive and should
7 be avoided. One of them is the Old Crow Flats, as Dr.
8 Gunn has mentioned. The other, as far as we were
9 concerned, was the Canning River Valley, and similar
10 valleys of major rivers that flow onto the North Slope
11 and their upper reaches. We also felt that on the west
12 side of the Mackenzie, the delta of the Ramparts and
13 Ontonagon Rivers was an area that should be avoided if
14 at all possible.

15 I think those are probably
16 major categories that, from our standpoint we, wanted to
17 see avoided.

18 Q And have they been, all
19 the ones that you have --

20 A Well --

21 Q With the exception of the
22 Canning River, should the interior route be selected?

23 A -- yes.

24 Q And at the moment the
25 prime route shows that preference.

26 A That's correct, yes.

27 Q Yes. Dr. McCart?

28 WITNESS MCCART: Excuse me.
29 Did the guideline areas exclude it, or in which there
30 should be restrictions, would that be --

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 Q There are two terms in
3 the guidelines, Dr. McCart. One in which activities
4 should be restricted and another that says the govern-
5 ment should identify areas from which pipeline activi-
6 ties should be excluded.

7 A Yes. Well, as far as
8 areas in which restrictions, severe restrictions might
9 be placed, I would put the coastal lagoons again, as an
10 area where we would want to see fairly restricted
11 activity, well regulated activity, because these are,
12 of course, important areas as far as anadromous fish
13 /populations goes. I would also like to see a high level of regulation
14 in the vicinity of any springs inhabited by fish, and
15 again the Canning River Valley, seems to me that if the
16 pipeline goes through the Canning River, Marsh Fork, or
17 the main fork of the Canning River, whichever route is
18 chosen, that it could only be done without damaging
19 fish populations if it were very highly regulated in
20 that particular area.

21 Q Now, are there any areas
22 that you have identified that fit into the next category,
23 areas that you have suggested to the applicant, the
24 pipeline should not go through, or any interrelated
25 activities?

26 A I can't see areas of that
27 sort where I would say that a pipeline couldn't possibly
28 be constructed, no.

29 Q All right, Dr. Banfield,
30 do you have any areas that you have suggested to the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 applicant should either have very restricted activities
3 or none at all as they relate to the pipeline?

4 WITNESS BANFIELD: Mr. Bayly,
5 I'm at a slight disadvantage. I don't have before me
6 the extended guidelines. Could you read specifically
7 what you're referring to?

8 Q Counsel has them there.
9 I borrowed them from Mr. Ryder yesterday and he informs
10 me that he didn't bring them down again today. It's
11 No. 4, Mr. Marshall.

12 MR. MARSHALL: No. 4, page 11,
13 yes.

14 A The key word seems to
15 be that the government will identify geographic areas
16 of specific environmental and social concern. Also the
17 date of the expanded guidelines, I believe they were
18 published in September '72, is that --

19 MR. BAYLY: I think that's
20 correct, yes.
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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 A My own involvement
2 started a year previously, a year and a half previously
3 and so my early advice was not couched in the same
4 terminology of future guidelines.

5 Besides the areas that have
6 been mentioned, I would say that I mentioned two at
7 an early stage, in 1971, that I felt that it would
8 be undesirable environmentally to cross the main part
9 of the Mackenzie Delta or the Central Mackenzie
10 Delta.

11 In a slightly different vein
12 I mentioned to the group that I was dealing with then,
13 a real reluctance to agree to a pipeline route across
14 the Arctic National Wildlife Range, unless they could
15 show that it could be constructed with minimum environ-
16 mental impact.

17 Q All right, and has your
18 opinion changed about the main part of the Delta or
19 do you still feel that way and would that still be your
20 recommendation to the Applicant?

21 A No, my view has not
22 changed on that and it would still be my recommendation.

23 Q And does that view with
24 regard to the Mackenzie Delta itself, one that is
25 shared by other members of the panel?

26 MR. MARSHALL: The central
27 part of the --

28 MR. BAYLY: I believe that
29 is what Dr. Banfield said, yes, the central part of
30 the Delta. I think that excludes the crossing of the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Shallow Bay, in my interpretation of your remark,
2 is that correct, Dr. Banfield?

3 THE COMMISSIONER: Well,
4 let's get this straight, because the central part of
5 the delta is a fairly large area. This, Dr. Banfield,
6 you just nodded in assent to what Mr. Bayly said. I
7 think that should be on the record.

8 MR. BAYLY: Yes, perhaps you
9 could outline that area specifically because I think
10 that is important both to the Applicant and other
11 participants.

12 A Well, the Mackenzie
13 Delta is a very large area as we all recognize here and
14 it is also not a single ecological unit. There are
15 several aspects to the Mackenzie Delta, for instance,
16 tree line crosses the lower Mackenzie Delta.

17 I was referring specifically
18 to the very braided part of the Mackenzie Delta, the
19 innumerable channels and lakes, particularly in the
20 wooded part of the upper Mackenzie Delta, because of
21 the tremendous importance and value of the fur trade
22 in that area, particularly the muskrat harvest and
23 also as an important breeding ground for ducks. Dr.
24 Gunn has mentioned several times.

25 Ecologically the delta can
26 be subdivided into a number of different sections.

27 THE COMMISSIONER : Well, let
28 me understand where you sit on the question Mr. Bayly
29 asked you, that is, when in the early 70's you advised
30 Arctic Gas you didn't wish, that you thought they should

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 not bring the pipeline across the Delta, does that
2 mean that you now think that it is a mistake to
3 bring it across by the route that they have chosen,
4 across the Delta?

5 A No, I don't. I do not
6 believe it is a mistake for the proposed cross-
7 delta crossing. If you, I can really update my
8 comments even more, I was asked this question in
9 Whitehorse and at that time I indicated that I was
10 still opposed -- no, I indicated that I had not yet
11 formed a decision and that was because at that time
12 I had not seen the reports of the various consultants.
13 Since that time I have seen these reports, attended
14 meetings at which they have been discussed, and
15 personally flown the proposed route and landed at
16 several camps and examined what research was going
17 on and so I now have an opinion on that subject.

18 MR. BAYLY: I take it, Mr.
19 Commissioner, if Dr. Banfield has had an opportunity
20 to read these reports that they will be available
21 to us very shortly.

22 THE COMMISSIONER: Yes, will
23 Dr. Banfield be back at the Delta Phase?

24 MR. MARSHALL: I haven't had
25 a chance to talk to him about that, sir. I know he
26 is supposed to be undertaking some teaching duties in
27 the New Year in Scotland, and Mr. Hemstock and I haven't
28 had a chance to talk about that subject.

29 With respect to Mr. Bayly's
30 comment about the reports, the consultants have been

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 trying to find time to finish their reports dealing
2 with the cross-delta. They have done them in a
3 preliminary form. I have discussed this with them.
4 They don't feel that they have got them in shape to
5 be submitted to the Inquiry. They realize this is a
6 matter of considerable interest and there will be
7 extensive cross-examination on it and so on, and
8 they want to get them into proper shape before they
9 are distributed, and as soon as the consultants are
10 satisfied with some -- and they have them in the
11 form that they are happy with, they will be made avail-
12 able to the Inquiry and I expect that that will be.
13 fairly shortly.

14 MR. SCOTT: Well, Mr. Com-
15 missioner, is there any arrangement under which
16 we could see the draft reports? Obviously, if the
17 reports are delayed long enough, it will be impossible
18 to conduct any cross-examination in January or early
19 February about them and is it not possible for us to
20 see them in the form that Dr. Banfield saw them in?
21 It being understood that they may want to be modified
22 or qualified or updated as we come toward the hearings,
23 but if we don't have those fairly soon they are not
24 going to be of any use to any of the participants.

25 MR. MARSHALL: I have no
26 doubt but that they will be available before we break
27 for Christmas, Mr. Scott, and you will have, as I
28 understand the schedule, probably six weeks or so to
29 review them before Arctic Gas would be calling evidence
30 pertaining to the cross- delta. I think it would be

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 sometime in the latter part of January that we will be
2 getting to that. I felt that while there were prelim-
3 inary reports, it was important to respect the feelings
4 of the consultants. If they don't feel that they
5 have had sufficient time to fully analyse all the
6 data and have a comprehensive report respecting
7 their discipline, that was something that ought to be
8 honoured and I know that you are anxious to get them,
9 Mr. Scott, but it seems to me that it would be kind
10 of unfair to the consultants to put them in the position
11 of having to defend something that they themselves
12 don't think is the final product.

13 MR. HOLLINGWORTH: Well, sir,
14 I would have thought at the time that cross-examination
15 took place that they could say that the final product
16 had changed from the preliminary product and they
17 could let us know then. I don't really follow that
18 point of Mr. Marshall's.

19 THE COMMISSIONER: Well, Mr.
20 Marshall says that these will be available before
21 we break for Christmas, so that would give everyone
22 quite a bit of time. Let's leave it for a week or
23 so and then we can have another go at it.

24 MR. MARSHALL: They have
25 been finding some difficulty lately in putting aside
26 a little time to work on these things, that you can
27 understand.

28 MR. BAYLY: They will go as
29 quickly as they can, Mr. Commissioner.

30 Q Now, where we had left

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McCart, Jakimchuk
Cross-Exam by Bayly

1 off was with Dr. Banfield saying that there was a
2 portion of the delta that he would like to see avoided
3 and with the exception of the area in which the
4 crossing is to take place, it includes at the braided
5 part of the delta where ducks breed and where muskrats
6 abound and are harvested in numbers.

7 Dr. Gunn, have you any similar
8 reservations about the Mackenzie Delta?
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Banfield, Gunn, Hemstock,
McCart, Jakimchuk
Cross-Exam by Bayly

1 WITNESS GUNN: There is
2 mention in the environmental statement, 14-D north, that
3 the maintenance of the integrity, the ecological integ-
4 rity of the Mackenzie Delta should be considered as
5 one of our prime objectives. It still remains
6 that, as far as we are concerned we still maintain
7 that position.

8 Q Yes, and yet you are
9 satisfied with, similarly to Dr. Banfield's being
10 satisfied, with a crossing of the Shallow Bay to avoid
11 coming down the west side of the delta and back up the
12 east side?

13 A As the application has
14 been put forward, we have stated that we prefer the
15 old prime route.

16 Q All right

17 THE COMMISSIONER: The old
18 prime route around the delta?

19 A Yes.

20 MR BAYLY: Q All right. So if we
21 can put your sort of concerns on routing then, in a
22 phrase, you have serious reservations about the coastal
23 prime route, you would prefer the old prime route to
24 the cross-delta amendment, and you would prefer from
25 a bird point of view, the interior route to either of
26 those.

27 MR. MARSHALL: I don't really
28 think that's what he said.

29 MR. BAYLY: I didn't say it was.
30 I was just asking if it was, M r. Commissioner.

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1 A I think you've got about
2 three questions in there at once. I'd rather have them
3 one at a time.

4 Q All right, perhaps you
5 could list then your priorities for routing, given that
6 there are three alternatives now. There is the interior
7 route, there is the old prime route, and there is the
8 prime route with the amendment crossing the delta.

9 A I think our position has
10 been quite clearly stated, with regards the interior
11 route in comparison to the prime route across the North
12 Slope, we prefer the interior route, for ornithological
13 reasons. Comparing the old prime route, in the portion
14 which travels around the delta on the west side and
15 the cross-delta route, as it has been presented to us
16 we prefer the old prime route.

17 Q Yes. Now, could we have
18 some comment from you, Dr. McCart, with regard to the
19 delta? Do you share the reservations of Dr. Banfield,
20 with regard to that portion of the delta that he
21 mentioned shouldn't be used for pipeline or related
22 activities?

23 WITNESS McCART: I haven't
24 actually looked at that area of the delta from a fisher-
25 ies point of view. I should add that it is an area that's
26 not very well known. No one has done very much work in
27 that area of the delta that Dr. Banfield was mentioning.

28 Q Yes. Mr. Jakimchuk, with
29 regard to mammals and I suppose in particular fur-bear-
30 ing mammals such as muskrat, do you share Dr. Banfield's

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Cross-Exam by Bayly

1 opinion with regard to the delta?

2 WITNESS JAKIMCHUK: I share his
3 opinion, from the existing data, the upper parts of the
4 delta are far more productive for fur-bearing animals
5 than the lower, far more active portions of the delta,
6 yes.

7 THE COMMISSIONER: Are far
8 more what?

9 A Far more active, more
10 dynamic portions of the delta - the young delta, in
11 other words, the outer.

12 Q Still being formed?

13 A Yes.

14 MR. BAYLY: Q Dr. Gunn has
15 stated preference for the old prime route, the cross-
16 delta portion, and do you share that concern with him,
17 or are you satisfied, as Dr. Banfield is, with the
18 crossing of the delta at this point?

19 WITNESS GUNN: Well, you know,
20 our last field party just came out of the field a week
21 ago and, doing some winter work.

22 Q So you don't know if
23 you're satisfied or not?

24 A Well, I still have some
25 more information to look at. I've looked at the area
26 myself last summer, I've looked at some of our other
27 data from summer surveys but I haven't looked at it
28 all yet.

29 Q Now, Dr. Gunn, would
30 you include in your recommendations of areas that

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McCart, Jakimchuk
Cross-Exam by Bayly

1
2 should be avoided, the Campbell Hills which you spoke
3 about in your cross-examination by Mr. Hollingworth
4 yesterday?

5 A You're asking me did we
6 include or would I include?

7 Q Would you include? I
8 gather you didn't because you didn't mention it this
9 morning.

10 A I think I would have to
11 look at it carefully, relating the locations of the
12 falcon nest-sites to the present -- the proposed
13 pipe routing. If this is a hypothetical question now,
14 if the routing were to go very close to some of those
15 nest-sites, we would have to look at that very carefully
16 but I at the moment I don't think it does. So we have
17 not made any specific recommendation in that regard.

18 Q Yes. Now, with regard
19 to some of your specific recommendations, and I'm
20 referring to recommended precautions, on page 3 of
21 your section on recommendations -- do you have that
22 before you, sir? Now I take it that recommended
23 precautions aren't in the same category as areas that
24 you have advised the applicant to stay out of. They
25 are areas in which the applicant should be careful to
26 avoid certain things and to do things in certain ways.
27 Would that be a fair appraisal of that section of
28 recommendations?

29 A No, I don't think so.
30

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 Q You'd want them to stay
3 out of these areas as well?

4 A Well, precaution isn't
5 an area. This is a list of recommended precautions, it's
6 not a list of areas where we think people should stay
7 out of.

8 Q Yes, but each of these
9 recommended precautions refers to an area and if we can
10 turn to page 5 of these under No. (iii), you say in that
11 one:

12 "Compressor station CA-05 at the Malcolm Delta
13 plus associated facilities and borrow pits has
14 been sited within the Malcolm Delta goose
15 concentration area and is in conflict with a
16 small cluster of endangered and/or rare
17 raptor nest-sites located within five miles."

18 A Right.

19 Q Now, you're talking about
20 it being in conflict. What precautions do you recommend
21 to avoid that conflict?

22 A Moving the site.

23 Q You stated in cross-
24 examination from Mr. Hollingworth that you had recommen-
25 ded that pipeline/^{and}related facilities stay at least
26 2 1/2 miles from falcon nesting areas. Here I notice
27 that you say in little (iv):

28 "Compressor station CA-06 west of Shingle Point
29 plus associated facilities on borrow pits has
30 been sited in the Crow-Phillips goose concentration

Banfield, Gunn, Hemstock
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Cross-Exam by Bayly

1
2 area and is also in conflict with a cluster
3 of endangered and/or rare raptor nest-sites
4 located within five miles."

5 Did you mean, sir, to say that it's really, you'd
6 like them to stay more than five miles away from the
7 raptor nest-sites, rather than 2 1/2?
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Banfield, Gunn, Hemstock
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1 A No, I think in each
2 of these cases we have two conditions. One is that
3 the site is within the area used by snow geese
4 during the staging period and it is also close to a
5 small group of raptor nest sites.

6 Q Yes.

7 A The combination of the
8 two is sufficient in our opinion to give serious
9 consideration to moving the site to another location.

10 Q Yes.

11 A It doesn't have to be
12 moved very far, but a small move I think makes quite
13 an important difference.

14 Q Yes, and you do state in
15 your comment on the same page, page 5, that relocation
16 four or five miles in either direction of those two
17 compressor stations would materially reduce this
18 conflict both with the geese and the raptors.

19 Now, this is a recommendation
20 that you have made to the Applicant and perhaps we
21 could ask Mr. Hemstock if that is the sort of recom-
22 mendation that can be followed and I ask you to answer
23 this, sir, in light of Mr. Purcell's evidence earlier
24 in this Inquiry, that compressor station locations are
25 fairly critical and when responding to an inquiry about
26 requests from Native peoples in certain areas,
27 they requested that a compressor station site be moved
28 more than a mile, Mr. Purcell had serious reservations
29 about the ability of the Applicant to do that. Now,
30 has that state of affairs changed, or would that be the

1 same sort of difficulty that you'd face with this
2 recommendation from Dr. Gunn?

3 A I think that there are
4 several things in that question, Mr. Bayly. Whether
5 or not Mr. Purcell's stated position, which you
6 attempted to summarize remains the same, that is one
7 of them, it seems to me there were a number of things
8 wrapped up in that fairly long question, could you
9 break it up a bit?

10 Q Certainly. This recom-
11 mendation has come to you, Mr. Hemstock, is that
12 correct, sir?

13 WITNESS HEMSTOCK: Yes.

14 Q And you have considered
15 it, have you?

16 A Yes.

17 Q And you have spoken to
18 the engineers about this recommendation?

19 A Yes.

20 Q And did you speak to
21 Mr. Purcell about this recommendation?

22 A No.

23 Q And who would you speak
24 to other than Mr. Purcell who could tell you whether
25 this recommendation could be carried out?

26 A Mr. Williams.

27 Q And with Mr. Williams
28 did you have a conversation about this recommendation?

29 A Yes.

30 Q And what was the substance

1 of that conversation and what was the result of it?

2 A It was wrapped up with
3 discussion of a number of other locations and we
4 agreed that we would be looking at the location or the
5 site specific suggestions from our consultants, like
6 this one, when the final locations of the compressor
7 stations are being made. We have, within the hydraulic
8 outlines that you referred to, a freedom to move
9 something like a mile either up or down, but this will
10 vary from compressor station to compressor station,
11 so it is a matter of putting those things altogether.
12 We would probably, in this particular case, look at a
13 location about a mile away, see if the proper geotech-
14 nical and other factors were suitable, and then
15 check with Dr. Gunn to see what he thought of that.

16 Q All right --

17 A It is a matter of
18 review with both sides until you come to a
19 satisfactory solution, and it is not a matter of
20 black and white as Dr. Gunn has outlined. There is
21 really no magic about the two and a half miles. That
22 is a recommendation. If it is 2.4 miles, looking at
23 the specific site he will give us an idea whether
24 it is satisfactory or not.

25 Q Yes, Dr. Gunn appears
26 to have looked at this specific pair of sites and
27 he says four to five miles. Is that something that
28 you have been informed by Mr. Williams or others as
29 out of the question, because you've said that
30 one mile in either direction is possible and

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 perhaps a bit more, but you didn't tell me what a bit
2 more meant.

3 A Well, as soon as you
4 start moving more than about a mile there is a penalty
5 on the amount of fuel which is required to power the
6 line, and that too is an environmental impact. The
7 more fuel that is required to put through the -- pump
8 the gas to the market, the more cost there is
9 to the user. So you have to balance that off.

10 Q All right.

11 A And in some cases it
12 may be that we will not be able to move to the limits
13 that Dr. Gunn would like and there will be some
14 impact.

15 Q And Dr. Gunn, have you
16 had feedback from Mr. Hemstock or others about whether
17 or not, less than the four or five miles you recommended
18 would be satisfactory in one direction or the other?

19 WITNESS GUNN: We have dis-
20 cussed this problem and in my view the best practical
21 solution is on a site specific basis where you go out
22 and look at it on the ground and see what the alternatives
23 are and see whether we can accommodate the compressor
24 site at a location less than four or five miles.

25 Q And that hasn't been done
26 yet?

27 A I beg your pardon?

28 Q That hasn't been done
29 yet with regard to these --?

30 A No, it hasn't been done

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 yet.

2 Q Now, we received from
3 Dr. Gunn, quite a detailed series of recommendations,
4 and I am wondering with regard to the other environmental
5 consultants, whether they approached their problem
6 areas in the same way, and whether they have produced
7 similar sets of recommendations that we could have
8 the advantage of. Perhaps Dr. McCart could respond
9 to that.

10 WITNESS MCCART: No, we do
11 not have -- we haven't integrated them all into a
12 single volume as Dr. Gunn has.

13 Q Could you say that again,
14 Dr. McCart, I just didn't hear that.

15 A We haven't put them into
16 a single volume, into a single report as Dr. Gunn has,
17 so we do not have that kind of a document available.

18 Q Okay, and how do you
19 submit them to the applicant?

20 A Sometimes orally at
21 meetings and some instances there are letters,
22 memoranda on file, in some instances these are comments
23 which are included on sheets, alignment sheets and
24 things of this sort.

25 Q How do you keep track of
26 them all, Dr. McCart?

27 A Well, sad to say, we
28 haven't kept track of them all, as a matter of
29 fact. Some of the oral communications, we know that
30 we have made recommendations, but we obviously don't

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 have a record on tape or anything of that nature. We
2 have obviously letters and memoranda, copies of
3 most of these in our files.

4 Q So with regard to
5 everything but the oral ones, you have at least
6 kept track of those?

7 A I didn't quite under-
8 stand, what was that?

9 Q With the exception of
10 some of the oral ones, you have kept track of all
11 your recommendations?

12 A Yes, unless a letter
13 has been lost from the files, something of that
14 nature.

15 Q All right, and does that
16 happen very often?

17 A It may have.

18 Q Well, do I take it
19 from this, Dr. McCart, that you haven't brought together
20 the recommendations to see A whether you can find
21 them all; and B) what the response has been to them
22 in total from the applicant, would that be a fair
23 statement?

24 A We have not produced a
25 document similar to the one that Dr. Gunn has produced.

26 Q All right. How are you
27 going to find out whether the applicant is going to
28 be able to respond to your concerns?

29 A Well, we know what our
30 concerns are, of course, and we can tell by looking at

1 the alignment sheet, and the placement of the line
2 and various areas whether he has responded or not and
3 if he hasn't we will point it out to him again at
4 the appropriate time.

5 Q All right, and so you
6 feel that the ones that you may have lost track
7 of that were oral communications/^{that are}still concerns to you
8 can be identified by looking at the alignment sheets?

9 A Yes, I think that we can
10 identify most of our concerns by looking at the
11 placement of the alignment at this point.

12 Q Now, you have said
13 "most" of them. Do you feel that you will lose some
14 of them in the process that's been used to produce
15 the recommendations?

16 MR. MARSHALL: Mr. Commissioner,
17 Dr. McCart has been working on this for five years.
18 Now, he said all he can say about the subject. Surely
19 it has been exhausted.

20 MR. BAYLY: Mr. Commissioner,
21 we are dealing with a panel which has produced a
22 critique of other environmental assessments and
23 they have put forward their model of an environmental
24 assessment based on a couple of examples and Dr.
25 McCart is part of that assessment.

26 Now, I want to find out
27 about his recommendations and whether they were all
28 followed and he has just said that he could identify
29 most of them. I would like to know, some of them
30 may be important that he hasn't been able to keep track

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 of and if he says that is not the case then I will not
2 be concerned, but all he's said so far is that he can
3 keep track of most of them. I think it is very im-
4 portant if some of them were lost, that certain things
5 may be overlooked.
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Banfield, Gunn, Hemstock
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1 MR. MARSHALL: I appreciate
2 your concern, / you want to know what his recommendations are.
3 He doesn't have them all put together
4 as L.G.L. has done in one document, but Dr. McCart
5 is still alive, he's still working on this, as other
6 people are. They know what their concerns are and he
7 said that they've got the same concerns that they've
8 had in the past, they can identify them. How can he tell
9 you if he made a recommendation five years ago and
10 has forgotten about it now? He can't possibly remember
11 that sort of thing, but he's still working on the pro-
12 ject, he's still doing research, he's still making
13 assessments, he can identify those areas of concern and
14 as he said, he does that repeatedly. If the change
15 isn't made, he says something about it.

16 MR. BAYLY: Mr. Commissioner,
17 if the applicant tells me that --

18 MR. SCOTT: I have a suggestion
19 to resolve this impasse. This is surely as sophisticated
20 a panel as will ever give evidence in any tribunal.
21 This is also cross-examination. It seems to me the
22 appropriate objections in a cross-examination are
23 restricted to the relevance of the question asked or
24 the answer anticipated. The objections we've had this
25 morning don't fall into that category. They appear to
26 be an effort to simplify the question or to modify it,
27 so that the panel of beginners could respond to it. It
28 seems to me respectfully that this objection is only going
29 to delay the proceedings. If the panel doesn't understand
30 the question, they are quite capable of saying so, and
I would have thought that in a panel of this sophistication

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1 Mr. Marshall's efforts to protect them would be misunder-
2 stood and surely the thing to do is to simply proceed
3 until there is a question as to whether the answer
4 anticipated is relevant. If it's not relevant, well then
5 it should be objected to.

6 MR. MARSHALL: Well, it's --

7 MR. SCOTT: That's my lecture
8 for this morning to my friend.

9 THE COMMISSIONER: Well, I don't
10 misunderstand your efforts in any way. I think Mr.
11 Marshall is concerned that there is a tendency, from
12 time to time to go over the same ground again, and
13 he thinks that's wasting the tribunal's time, his time,
14 and the panel's time, and sometimes that occurs. But
15 in the interests of a fair hearing my own inclination
16 is usually to say, "Well, let's look at it again and
17 see if it gets us anywhere."

18 But in the midst of all this
19 discussion I confess I've forgotten exactly where it
20 was that you were.

21 MR. BAYLY: Mr. Commissioner,
22 I had asked the question about what recommendations
23 Dr. McCart -- whether Dr. McCart could remember all
24 the recommendations that he'd made, and he said, "Yes,
25 most of them."

26 I was concerned that some of
27 those recommendations had gone to the applicant and
28 had become lost. He'd also said that he could identify
29 on the alignment -- by looking at the alignment sheets
30 whether the concerns he'd expressed had been responded

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Cross-Exam by Bayly

1 to in the main; but he said "most of them, not all of
2 them." I'm just concerned --

3 THE COMMISSIONER: But where
4 do you want to go from here? This is what I'm asking.

5 MR. BAYLY: Mr. Commissioner,
6 I want to go from here and eventually come through the
7 mammal portion and back to Dr. Banfield, who has held
8 up the environmental -- this environmental panel's
9 approach to environmental assessment as a model for us
10 all, and I want to test that model and see if in fact
11 it is what Dr. Banfield says it is. If it is, that's
12 great; but if there are shortcomings, I want to know
13 what they are. I want to go through each witness' method
14 and I want Dr. Banfield eventually to comment on that,
15 in light of the questions I will ask him, and I think
16 in light of the evidence that he has given through his
17 submission of early last week that I'm entitled to do
18 that, sir.

19 THE COMMISSIONER: Well, given
20 that general objective, I don't think Mr. Marshall would
21 disagree with it. But I got the feeling that he was
22 saying to this Inquiry that there was nothing left for
23 Dr. McCart to say, that everything he could tell us
24 about his methodology had been offered to us. Where
25 -- you're through with Dr. McCart now then, are you?

26 MR. BAYLY: Yes. The only thing
27 that has come up since is that I understand from Mr.
28 Marshall's evidence that we're at the position where
29 some of Dr. McCart's recommendations depend on his
30 mortality.

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1 THE COMMISSIONER: Well, Dr.

2 McCart said he hadn't written it all down and some
3 things he may have said to them over the phone or in
4 person and he didn't make a note of them at the time,
5 which is understandable, and he can't remember those
6 things now; and if he should be taken from us, we'll
7 never know, that's the risk.

8 MR. MARSHALL: Perish the
9 thought.

10 MR. BAYLY: That is the concern
11 that I wanted to bring out, sir, and I've gone the
12 length of that and my next question, which was the one
13 that Mr. Marshall had objected to, was whether there
14 were any matters that he would worry about the importance
15 of, that he might have lost track of.

16 THE COMMISSIONER: Well, if
17 they were important, presumably he could remember what
18 his recommendation was. I would think so.

19 MR. BAYLY: Well, perhaps this
20 doesn't get us anywhere because Dr. McCart will surely
21 answer that way, if it was important he would remember.
22 He's nodding his head.

23 THE COMMISSIONER: All right,
24 well we've gotten around that corner.

25 MR. BAYLY: All right, well
26 let's go round the same corner while we're at it,
27 Mr. Jakimchuk, with the recommendations that you made
28 to the applicant, and I don't mean in specie at this
29 point because I'll be going through some of the concerns
30 that we have with mammals in both the prime and the

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Cross-Exam by Bayly

1
2 interior route, but at the moment can you tell us how
3 you put your concerns to the applicant and how you
4 found out whether they were responded to or not?

5 WITNESS JAKIMCHUK: That's a
6 long story that commenced in 1971 when we first became
7 involved. Our concerns were put forward in reports,
8 in memoranda, in meetings, in a large number of meetings;
9 in latter years by telex where, you know, where we were
10 asked to comment on a specific question. They were
11 written down on maps in some cases, there were several
12 alignment alternatives that may have been available.
13 So they have been routed in several ways to the
14 applicant. How do I know whether they've been responded
15 to? Well, I have been told or I have seen whether or
16 not a change has resulted from these recommendations.

17 That's where it stands.

18 Q All right, and are you
19 in the position that Dr. Gunn is in, of having produced
20 at some point or from time to time a collection of your
21 recommendations that -- or concerns -- that are still
22 outstanding?

23 A Following Dr. Gunn's
24 very good example, we have started on such a process.
25 My own feeling right now is that we should bring all of
26 these together, under various categories of such things
27 as a routing operation scheduling and so on, and so we
28 are going to pull them all together and we've commenced
29 doing that, and also up-dating, of course, is very
30 important because with each new year we get more data.

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 So we're going to follow Dr. Gunn's example.

3 Q Yes, and this has begun,
4 has it, with regard to your discipline?

5 A Well, whenever I'm not
6 preparing testimony or something of that nature, I
7 work on it, yes.

8 Q Yes. Now, Mr. Hemstock,
9 you're the conductor of this orchestra. What sort of
10 demands do you make on the environmentalists to get
11 the concerns in? Is there a format that --

12 MR. MARSHALL: I'm sure you
13 didn't mean that remark, Mr. Bayly, and I'll let it
14 pass.

15 THE COMMISSIONER: Well, I
16 think it was partly facetious.

17 MR. SCOTT: There's a very
18 good way to let these remarks pass, but I won't
19 recommend it to my friend.

20 THE COMMISSIONER: Let's get
21 on with it, Mr. Bayly, leaving aside the --

22 MR. BAYLY: Yes, Mr. Hemstock,
23 anyway, you are the man who keeps tabs with all the
24 environmentalists and finds out what they are doing
25 and helps pass their recommendations onto the applicant.
26 Would that define your role satisfactorily?

27 WITNESS HEMSTOCK: Yes, that's
28 also part of the function, though, of Mr. Glasrud,
29 though, who is the environmental manager for N.E.S.
30 and who is directly in contact with them, so there's

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 really two routes.

3 Q All right.

4 A To get this to management
5 and to particularly the engineering people.

6 Q Now, have you given any
7 guidelines to your experts on how you want recommendations
8 submitted, and I don't mean the wording but whether
9 they should be in the form that Dr. Gunn has made them
10 or in the form that Dr. McCart has presented them?

11 A No, I haven't given any
12 recommendations. I've been quite satisfied with the
13 routines which we have had, which they have described,
14 and where I think probably the main recommendations
15 come at meetings of environmental and engineering
16 people, where we discuss the problems. That's typified
17 by the meeting that has often been referred to, I
18 think it was April 1973.

19 Q All right, so you're
20 satisfied as long as you get the recommendations, in
21 whatever form the particular expert gives them to you.
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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 A Yes, and perhaps it is
2 worth pointing out that there has been a great change
3 in the form of recommendations since the project
4 started. In '71 and '72 there had been -- there were
5 various proposals for the method of pipelining. For
6 instance, there was berm construction, was one of the
7 methods which at that time was proposed. That
8 raised a lot of concerns on the part of the environmental
9 people, and those recommendations that are back there,
10 with regard to that kind of construction, of course,
11 are no longer valid, no longer of concern to us.

12 As we have learned more
13 and become more specific with regard to the routing,
14 then the recommendations become much more site
15 specific and more confined, so that there is a change
16 in this and as we indicated from here on in, there will
17 be a lot more site specific work required.

18 Q So this will result,
19 I take it then, in more of the kinds of site specific
20 recommendations that we have received already from
21 Dr. Gunn, and these would come to you from the others
22 as well --

23 A Yes.

24 Q -- because I take it
25 the engineers need those on a site specific basis.
26 They will demand them from you and from the panel
27 so they will know what problems they face in an area
28 that they don't understand?

29 A That is right, and I
30 think we illustrated in panel two, that last summer there

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 was a multi-discipline group went out and were examining
2 site specific borrow sites, and that includes, that
3 requires environmental input.

4 Q Now, is it likely, and
5 perhaps Mr. Marshall can answer this, sir, that if
6 Mr. Jakimchuk comes out with a series of recommendations
7 similar to those that Dr. Gunn has produced, that we will
8 have the advantage of having a look at those, at least
9 before the stage when we would want to put argument
10 to you, sir, concerning conditions and recommendations?

11 MR. MARSHALL: I think that if
12 Mr. Jakimchuk produces the report or study, he will
13 certainly make it available. I gather that as time
14 is available he is working on it.

15 MR. BAYLY: Yes, and Mr.
16 Hemstock, will you be asking Dr. McCart to give you
17 the kinds of site specific recommendations you have
18 received from Dr. Gunn so that they will be available
19 and a benefit to the engineers and other people who
20 will be planning on a site specific basis?

21 A Well, I really think that
22 Dr. McCart has already provided that sort of information.
23 The catalogues, for instance, that he has put out, are
24 very site specific, and I certainly would check with
25 him, but I don't expect much more site specific advice
26 from Dr. McCart with the present level of study.

27 MR. BAYLY: Now, Mr. Commissioner,
28 I don't know what the coffee schedule is, but I am
29 about to start on mammals and this would be an
30 appropriate time to break.

THE COMMISSIONER: It certainly would

(PROCEEDINGS ADJOURNED)

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(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. BAYLY: Now just before we begin with caribou and other mammals, Mr. Hemstock, what we were discussing earlier with regard to Dr. Gunn's concerns, raises a question in my mind and it's this, that can you tell me how we will know what recommendations made by the environmentalists are engineeringly feasible so that when not only the applicant but other participants come to make recommendations, they will be recommendations which we will know can be put into effect from a technical point of view; one of those being, for example, the movement of a compressor station a certain distance? There are obviously constraints of that in energy costs, in moving it, environmental factors with regard to competing interests of Dr. Gunn's.

WITNESS HEMSTOCK: The question was, when will you know or how will you know?

Q Yes. Let's start with the process to begin with, how will it come about that not only we but say Dr. Gunn will know about whether his recommendations are acceptable or whether they have to be modified for technical or other reasons? Or cost reasons?

A Well, that's an ongoing process and, of course, much of it has already gone on and been incorporated into the design or the alignment of the pipeline.

Q All right.

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1
2 A I think the hearing has
3 on record some of the changes which have been made.
4 Now we're getting to more site specific recommendations
5 and they will continue just as part of the normal
6 design construction, and I would foresee those kind
7 of changes being considered and being made, between now
8 and the start of construction. I don't ever see it as
9 getting to the place where we say, "O.K., that's it."
10 I think it's a continuing thing.

11 Q Let me -- go ahead.

12 A The changes that --with
13 regard to compressor stations would not be possible
14 until the final selection of the kind of power equipment
15 in the compressor station itself, and this will dictate
16 part of the engineering input into the freedom of
17 movement up and down the line. So that, while we have
18 those recommendations on file, we have to keep them
19 that way until we get all of the other factors and then
20 we take a look at it. That would probably not occur
21 until I would say about mid-1976.

22 Q Now, if we take the
23 example that was given yesterday, where you said on
24 behalf of the applicant, I assume, that should the
25 geese, because of some storm event, be forced from the
26 North Slope to where they staged this year, where your
27 proposed, in the area of your proposed crossing of the
28 delta, that the applicant would shut down for two
29 weeks. Now, assuming that everyone at this hearing were
30

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1
2 agreeable to that, and the Commissioner were to make
3 a recommendation that that happen, and a law was passed
4 that if the geese do that you will have to stop, how
5 do we know that is something that the project can live
6 with, that your engineers can put up with?

7 A Well, I don't think that
8 you can know about that ahead of the time that that
9 event takes place, and the circumstances that occur
10 then, and this is one of the difficulties, I think,
11 that there is with preparing a list of stipulations
12 which are that specific. I think that you have to keep
13 those broad and leave it to the people who are in charge,
14 at the time that the event occurs, to make a decision
15 on their best judgment at that time.

16 THE COMMISSIONER: Well,
17 excuse me, Mr. Hemstock, as I recall the evidence of
18 Mr. Williams, he did not, in discussing the construction
19 schedule make any allowance for say a two-weeks shutdown
20 upon environmental grounds such as the one Mr. Bayly
21 and you are discussing. He did say that there was
22 about a month at the front end, that is, there was about
23 four weeks slack built into your whole winter schedule
24 that would allow presumably for your -- that kind of
25 event. It really falls to the Inquiry here and to
26 the Energy Board at their hearings to decide whether
27 that is a plan that is going to work, is likely to work.
28 No one will really know until -- unless and until this
29 pipeline is built and that happens. But that's my
30 understanding of the evidence to this point, and Mr.

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1
2 Hemstock has in fact said, "Well, we don't know whether
3 we can still get our winter's work done if we have to
4 shut down for two weeks to accommodate the birds."

5 A Well, there are really
6 two different timings here and we shouldn't be confused.
7 The birds are not there during winter construction.

8 Q Yes.

9 A And we have indicated,
10 though, that one of the critical areas will be the
11 -- or timings will be the caribou calving, and we have
12 indicated that if they should arrive on the calving
13 grounds in close proximity to the pipeline during the
14 time of calving, that construction would be shut down
15 in that event. However, we go on to point out that
16 with all of the history that we have, there is, I think
17 there is something like two weeks or more of free time
18 in there which would make that kind of conflict unlikely.
19 The possibility of conflicts between the project and
20 environmental concerns are more likely during summer
21 because that's when there is far more wildlife activity.
22 At the same time, though, the project requirements
23 are more restricted then to compressor sites, wharf
24 sites, and the like, and there is a little more freedom
25 in the scheduling of events, with probably the most
26 critical one, the one that Mr. Bayly raised, having to
27 do with the shipping of required equipment and supplies.
28 You do have, though, options there for alternative
29 deposition of equipment at other staging areas, if there
30 is a site specific conflict at the time. I think it's

Banfield, Gunn, Hemstock
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1
2 very difficult now to decide what should be done in
3 that event because you don't know all of the concerns
4 at that time.

5 MR. BAYLY: Now, Mr. Commissioner,
6 I'll be coming back to this as a whole when I get to
7 Dr. Banfield's discussion on the way of assessing
8 impacts, but I'll now go on to the question of mammals,
9 and if we can start, Dr. Jakimchuk or Mr. Jakimchuk,
10 with your specialty which I understand is the study of
11 the caribou, and in particular of the Porcupine herd.

12 WITNESS JAKIMCHUK: I have been
13 involved with that for the last over four years.

14 Q Yes, and --

15 THE COMMISSIONER: Pull the
16 mike a little closer to you, sir, please.

17 MR. BAYLY: Now you've concentra-
18 ted on this as being one of the potentially sensitive
19 mammals at some of the times when construction or other
20 activities may be taking place, either in the interior
21 or on the North Slope, is that correct?

22 A We have concentrated on
23 the herd for a number of reasons. It's importance,
24 its large numbers, the fact that it has a very immense
25 range and could come into contact with facilities over
26 a large area, yes.

27 Q And it has importance not
28 only to -- as a species in its own right, but it also
29 is important to the local people as a food source
30 in Old Crow, Fort McPherson, Aklavik and points in Alaska.

1 A That is correct.

2 Q Yes.

3 Now, did you do the same
4 sort of, or did you use the same sort of approach
5 that Dr. Gunn did? Did you start by collecting base
6 line data?

7 A That is correct.

8 Q And when you went in,
9 were you in the same position that L.G.L. was with
10 regard to certain species of birds, that there was a
11 scarcity of information on this herd and some of its
12 habits?

13 A Yes, that is correct,
14 there was some information available from old, scattered
15 observations and a few old reports, but nothing very
16 systematic on the herd.

17 Q Yes, and nothing really
18 was done even to count the herd, as I understand, prior
19 to 1960, would that be fair to say?

20 A There was -- there had been
21 estimates made, a report by Dr. Munroe, I forget the
22 date of it, in which he estimated the numbers, but
23 once again, no real systematic effort to obtain a
24 census throughout its range.

25 Q Now, did you use the
26 Dr. Gunn approach and start by trying to count the
27 herd? Estimate the number of animals in this particular
28 aggregation?

29 A Well, no, not entirely.
30 Our first intention was to find the herd, actually, that

1 first March and to document its location and its
2 distribution and in addition to count numbers of animals
3 within various groups that we did survey and find,
4 and so our intention was not immediately to get a total
5 census of that herd, no.

6 Q All right, so you did
7 two things: you started first to locate them on
8 their late winter range, and this is their post
9 migration stage; and at the same time, or shortly
10 after, start to get an estimate of the numbers of
11 animals, would that be a more accurate way of putting
12 it?

13 A Yes.

14 Q And you did continue
15 to do this throughout the years that you studied
16 the herd, is that correct?

17 A Yes, with some variations.
18 We didn't count them in all areas of their range
19 every year.

20 Q Yes, but it gave you
21 an idea, a pretty good idea of the approximate number
22 of animals and did it give you an idea of whether or
23 not you were looking at a stable population or a popu-
24 lation that was on the increase or one that was in a
25 state of decline?

26 A We feel that the pop-
27 ulation is either stable or has been somewhat in -
28 creasing during the time that we have studied it.

29 Q Now, in order for the
30 herd to increase, the success of calving is a critical

1 thing, a critical stage in this development, is that
2 not correct?

3 A Yes, that is correct,
4 but there are other factors as well.

5 Q I am not trying to iso-
6 late that as the only one, but it is one in which you
7 have expressed particular concerns with regard to
8 conflicts in scheduling of pipeline activities because
9 they are activities that coincide at the end of the
10 construction season and at the beginning of the cows
11 arriving on the North Slope for calving, is that not
12 correct?

13 A I am sorry, what is
14 your question?

15 Q There is a potential
16 conflict that you are concerned about --

17 A Yes --

18 Q -- between calving and
19 pipeline activities in June?

20 A Yes.

21 Q And as you say, this
22 isn't the only thing that happens that is important.
23 Now, as the cows, as I understand, as they come up in
24 March, that^{is} come northward, they have the yearling
25 calves with them generally, is that not correct?

26 A Yes, that is correct.

27 Q And one of the tasks
28 that they have, if you call these tasks, is to get
29 rid of the calves prior to calving, is that not
30 correct?

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Cross-Exam by Bayly

1 A I don't understand you
2 To get rid of what calves?

3 Q The cows and the calves
4 travel together -- and the yearling calves.

5 A The cows and the yearlings
6 travel together, yes.

7 Q Yes, and before calving
8 takes place, the yearling calves are out on their
9 own? Is that correct?

10 A They are in the same
11 general area.

12 Q Yes, but they are not
13 attached to a particular cow?

14 A No.

15 Q But that is a process
16 that takes place on the North Slope, am I correct?

17 A I don't really know
18 very much about that process.

19 THE COMMISSIONER: Excuse
20 me, what you mean is separation?

21 MR. BAYLY: Separation of
22 yearling calves from the cows.

23 A I should point out that
24 the calves are not nursing at that time. They are
25 associated with cows in groups and sub-groups and
26 go along in the migration. Quite frankly, I am not
27 aware of any conscious effort of the cow to get rid
28 of yearlings.

29 Q Well, I would agree with
30 you that this is an area that not an awful lot is known

1 | about. Would that be a fair assessment? -- In
2 | behaviour? The yearlings travel with the cows,
3 | right through until pre-calving?

4 | A Yes.

5 | Q Now, what do we know
6 | about the importance of that period to these yearlings?
7 | The fact that they do travel with the cows?

8 | A Well, we know that they
9 | do travel with the cows and travel to the area of the
10 | calving ground along the migration route and it is
11 | considered by many workers that this is an important
12 | association in terms of a learning process for the
13 | younger age classes of animals.

14 | MR. BAYLY: All right, now,
15 | what --

16 | THE COMMISSIONER: Excuse me
17 | a minute. Ms. Hutchinson, do you have a second?

18 |
19 | Sorry. Just before Mr.
20 | Bayly goes on, Mr. Jakimchuk, presumably other herds
21 | have been studied all over the world that are of the
22 | same species or the same variety and presumably some-
23 | thing has been learned from the disassociation of the
24 | yearlings from the cows, if that is the right way to
25 | put it, that would allow you to draw some conclusions
26 | about the behaviour of yearlings and cows on the North
27 | Slope. Does that make any sense or am I -- ?

28 | A Well, there have been
29 | many, many studies, sir, of caribou populations over
30 | the world; a lot in North America and a number in

1 Russia. They have many parallel types of findings;
2 however, I am, if you are referring to this
3 disassociation of yearlings and cows, I am not aware
4 of a specific study --

5 THE COMMISSIONER: Oh, I
6 see --

7 A -- oriented towards
8 that aspect of behaviour.

9 MR. BAYLY: Would you agree
10 with me, Dr. Jakimchuk, that without taking away
11 from any of the key elements of the life cycle of the
12 Porcupine caribou herd that you have referred to in
13 your evidence, that this may well be one of them as
14 far as the yearlings are concerned, this learning
15 process on the migration and the arrival at the
16 North Slope prior to the calving time?

17 A Are you asking if that
18 is an important aspect of the life cycle?

19 Q Yes.

20 A I think that the learning
21 process is important inasmuch as it is involved with
22 the traditional behaviour and migrations of caribou,
23 yes.

24 Q What do we know about
25 the effects of disturbance on these yearlings at this
26 period of time if anything?

27 A Well, we have observa-
28 tional data on bands of caribou and groups of
29 caribou that include yearlings. We have the results
30 of our aircraft disturbance studies and sound simula-

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McCart, Jakimchuk
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1 A Well,
2 according to any of the information that we have, we
3 have not identified any specific peculiar responses of
4 yearling groups.

5 Q And would you say that's
6 an area, that the reason for that is because there hasn't
7 been a particular study on it, or because they don't
8 exhibit any extraordinary behaviour that you would have
9 otherwise noticed?

10 A As I say, yearling caribou
11 were observed and their activities documented as part
12 of caribou groups, in the studies we carried out.
13 We did not specifically carry out studies of yearling
14 caribou, there's a difference there. So that my con-
15 clusion I would draw from that is that we did not see
16 any evidence of a selective type of behavioural
17 activity on the part of yearlings.

18 Q Now, going back then to
19 calving as a very important time for the caribou, we
20 want to make sure that the cows are left alone during
21 that period of only a few weeks at the very most when
22 they will be having their calves; is that correct?

23 A Yes.

24 Q Now, you've read the
25 evidence, I take it, of Dr. Geist that he gave in
26 Whitehorse?

27 A Yes.

28 Q And he referred to the
29 North Slope as far as caribou are concerned on the
30 transcript at page 7363 as the nursery ground, and let

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1
2 me read this paragraph to you and invite you to comment
3 on it, either agreeing with or disagreeing with it, or
4 perhaps just commenting on it.

5 "Now, if the productivity of that land, particularly
6 for wildlife, were not so favorable, then the
7 following thing would be totally illogical, namely
8 that the northern area is a nursery ground for
9 a great diversity of animal species. But as I
10 mention nursery ground, I mean more than calving
11 ground for caribou. I mean something quite
12 specific. We know from bio-energetics that the
13 cost of growing and developing animals is much
14 greater than the maintenance cost of these animals
15 later on in wintertime, so what we are looking
16 here is at the area where the animals congregate
17 because of the super-abundance of resources
18 necessary for growth and development."

19 And he appears there to be emphasizing something that
20 goes on after calving but not -- this is Dr. Geist,
21 sir.

22 THE COMMISSIONER: Dr. Geist,
23 right.

24 MR. BAYLY: Q Would you care
25 to comment on that, Mr. Jakimchuk, as to whether you
26 consider this nursery period, if we can call it that,
27 an important part in the life of the caribou and of
28 the caribou herd?

29 WITNESS JAKIMCHUK: Well, it's
30 very difficult to single out any one given activity as

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1
2 being more or less important to caribou. Everything
3 within their life cycle is important to their survival
4 and their productivity. Yes, it is important. So is
5 winter range. So are migratory periods. So are post-
6 calving aggregations. They are all important to the
7 biological organism, yes.

8 Q All right, I quite agree
9 with you there; but what you've said in your evidence
10 is, for example, that your seeding program would not
11 take place until after the last date for calving, and
12 what I want to hear from you is whether you consider
13 calving more important than this nursery period, and
14 therefore the seeding could take place during the nur-
15 sery period, or whether all parts of the life cycle
16 are important, and it may not make much difference
17 whether calving is disturbed or the nursery period
18 is disturbed.

19 A I would -- my own view
20 is that the calving period is probably the most
21 sacrosanct time. I think of these things in
22 terms of vulnerability to various disturbances and
23 activities.

24 Q All right. Now, I take
25 it -- and I'm satisfied that that's your opinion but
26 let's say, in your words, that is the most important
27 item in this particular period we're discussing, the
28 calving is sacrosanct; the nursery period maybe less
29 sacrosanct, would that be a fair appraisal?

30 A I've said that it's

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1
2 important as well, and I don't really know what Dr.
3 Geist was referring to when he said "the nursery
4 period". Was he speaking of a geographic area in
5 which young calves occur? Was he speaking of the
6 actual nursing of young on cows? Was he speaking of
7 the period of time in which calves are with cows? I'm
8 not certain.

9 Q You've read this evidence
10 though in your appraisal of it you weren't certain
11 what he meant by that term?

12 A I've read it some time
13 ago. I'd have to look at it again but in answer to
14 your question I wasn't sure what context you were using
15 the term "nursery period".

16 Q All right. Well, let me
17 say this, that I'll make this volume available to you
18 at the lunch break so that we can come back to this
19 and -- because I think you should have the benefit of
20 going over it in case you want to comment further on it.
21 That's in Volume 53-A of the transcript.

22 A 53-A?

23 Q 53-A, at page 7363. Do
24 disturbance studies on the caribou with young calves,
25 either with your noise simulator or with aircraft in
26 that time right after calving, the time when you would
27 expect Mr. Dabbs to be able to start seeding?

28 A We did simulator studies
29 at our Jago River experimental site in the period
30 during and following, immediately following calving,

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1 yes. Your other question, no, the one relating to
2 aircraft disturbance.

3 Q Right. So given that the
4 seeding appears to be something that Mr. Dabbs has
5 recommended would be conducted from aircraft, we cannot
6 at this time tell whether or what the effects or
7 impacts might be on that portion of the herd with cows
8 and young calves in it, that might be disturbed by
9 the helicopters in the seeding operation. You just
10 don't have that data?

11 WITNESS HEMSTOCK: I might point
12 out that Mr. Dabbs has not recommended that the seeding
13 be done from helicopters. His recommendation, if you
14 recall, is that the seeding be done in wintertime
15 from a vehicle, and that followup seeding as required
16 be done by helicopter.

17 Q As I understood the
18 evidence, Mr. Commissioner, though I may be mistaken,
19 a statement appeared in the appendix to the impacts
20 on the terrain panel that said that aerial seeding
21 would not -- and that may be repair seeding -- but it
22 would not occur until the last, several days after the
23 last known date of calving, of the calving of the caribou.

24 THE COMMISSIONER: Well, we can
25 go back in the transcript and find out, but you can
26 surely put this on the basis of a hypothesis.

27 MR. BAYLY: Yes, all right,
28 I'll do that, sir.

29 MR. MARSHALL: I think they are
30 both right in that, I guess this is a rare occasion today.

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1 MR. BAYLY: Things are looking
2 up.

3 MR. MARSHALL: There was a
4 change in the revegetation program that Mr. Dabbs
5 spoke of, in that they now intend to do their seeding
6 program right following construction. They expect,
7 though, that they will have to go back and do dress-up
8 and so on, and I think that's the period that was being
9 referred to after the calving.

10 MR. BAYLY: I have that here,
11 sir, in the phase 3 evidence, a statement of the last
12 panel at page 14 provided by Mr. Hollingworth, at the
13 bottom of the page:

14 "Helicopter seeding of areas on the North Slope
15 would not commence before June 20th, which places
16 ^{it}
17 ~~A~~ week or more after the last known date of calving
18 of the Porcupine caribou herd, thus eliminating
19 any direct conflict between aircraft activity
20 and cows at the time of calving."

21 Oh, I'm sorry, that's this panel.

22 WITNESS JAKIMCHUK: And at the
23 bottom of page 14:

24 "Winter seeding as proposed by Younkin will
25 reduce to a great extent the need for aircraft."

26 Q Yes. Now, should then
27 any seeding have to be done by helicopter on the
28 North Slope, Mr. Jakimchuk, during this period shortly
29 after the calves have in the main been born, would you
30 be concerned that you have no data on how they would
react or how the cows and calves would react?

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1
2 A Well, I think we have
3 some generalized data that at very low elevations they
4 would be disturbed if they were encountered.

5 Q All right. We have been
6 told by Mr. Dabbs that the helicopter would of necessity
7 fly quite low in order to do this seeding. I think it
8 was approximately 100 feet.

9 A Yes.

10 Q I assume that is low
11 enough to cause this disturbance that you have spoken
12 of.

13 A Without any question
14 whatsoever.

15 Q Yes, and so you would be
16 concerned, and I assume you would be registering this
17 concern with the applicant.

18 A Yes. I am concerned
19 about low-level aircraft flights over caribou, and I
20 would prefer that any such flights avoid the vicinity of
21 caribou.

22 Q All right, so you would
23 be making that kind of a recommendation to the applicant

24 A I've discussed it with
25 Mr. Dabbs.

26 Q Yes, so he's aware that
27 it isn't just calving you're concerned about, but you're
28 also concerned about other times.

29 A Well, we have told the
30 applicant we're concerned about aircraft at all times
of the year actually.

1 Q All right, I just
2 wanted to make sure that Mr. Dabbs hasn't thought
3 that as soon as the last calf is born that it is
4 okay, and you have led him to believe that that is
5 not the case, that any aircraft disturbance of
6 aggregations of caribou could be harmful.

7 A Well, we specifically,
8 as a matter of fact, recommended a 1,000 foot ceiling
9 for aircraft overflights and this has been increased
10 by Arctic Gas to 2,000 feet elevation, so, you know,
11 this is a generalized policy that holds true, I think,
12 for all areas at all times.

13 Q Yes, I understand that
14 that would make aerial seeding very difficult because
15 it would run against --

16 A Yes, aerial seeding is
17 a special case --

18 Q Yes.

19 A That is correct.

20 Q Right.

21 A And I think it would have
22 to be treated in that fashion.

23 Q Now, when you say a
24 special case do you mean that it would be given
25 dispensation, or that it shouldn't be allowed in
26 areas where caribou --

27 A I think it requires
28 co-ordination with respect to the timing. For example,
29 the June 20th date -- it depends, there are geographic
30 variations in calving, there may be variations in

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1 time in which seeding could take place. By special
2 case I mean when any particular patch up work is
3 required, the situation is analysed based on the
4 current data to try to avoid as much as possible
5 any conflict and taking into account the particular
6 activities of caribou at that time, their general
7 northward drift and so on, to try to avoid or do the
8 seeding in an area where caribou are largely absent.

9 Q Yes, now, if we can
10 ago over this period of time, not with the idea of
11 showing that it is more important, but that it is
12 and important time. Have you measured, for example,
13 the increases in weight of caribou during the first
14 two weeks of their life? How much do they gain?

15 A We haven't measured
16 that. Others have, however. In the literature there
17 are data on that.

18 Q And if I were to suggest
19 to you that they doubled their weight in the first
20 two weeks, would you say that that is in the vicinity
21 of how much weight they put on?

22 A It sounds like it might
23 be a reasonable statement. They grow very rapidly,
24 primarily as a result of the milk from the cow.

25 Q Yes.

26 A It is very nourishing.

27 Q Can you analogize from
28 cattle to caribou, that if you disturb cattle greatly
29 you can put them off their milk? Can you do the
30 same thing with caribou?

1 A I don't know.

2 Q That hasn't been docu-
3 mented as far as you know, then?

4 A Not in the sense of
5 human disturbance. I don't recall ever coming across
6 a specific study of that.

7 Q All right. It might
8 be an important thing to know if there were potential
9 human disturbances, would you agree with that?

10 A Well, I think that it
11 is more important to know the likelihood of a disturbance
12 taking place and where the caribou happened to be and
13 what activities are proposed. I think that I prefer
14 to do it that way. I prefer to use the avoidance
15 mechanism of potential disturbance rather than the
16 physiological approach which may give you some in-
17 formation on a particular response of an animal,
18 but does nothing for the practicalities of protection,
19 you see. I must distinguish our approach to dealing
20 with such problems in that manner.

21 Q All right, and what
22 happens, though, when you are asked why, by the
23 engineer who says that it is critical that we go in
24 to do a certain operation at this time and you say
25 you've got to stay away, there's caribou there and
26 they ask you if it is a critical time and you say
27 all times are critical 'if there are caribou in the
28 area. Are we going to be satisfied with that, is
29 what I am concerned?

30 A Oh, they have largely

Banfield, Gunn, Hemstock
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1 responded to our concerns. When we say the calving
2 is a very important period they have acknowledged
3 that. We have said that it is more important than,
4 say, caribou on winter range, for example. You know,
5 it is a more important time.

6 Q Now, you studied this
7 particular herd, and as I understand there are some
8 significant things about it, and correct me if I am
9 wrong on this, that on the calving grounds on the
10 North Slope, out of 100 cows, you can expect approxi-
11 mately 50 calves?

12 A That is a general
13 approximation. It bounces up and down. I think
14 the lowest ratio is 47 per 100 cows and the highest
15 we have recorded is 66 per 100 cows.

16 Q And comparing that
17 to other herds in other parts of the country and
18 world, it can go up as high as an average of 75 to 90
19 calves per 100 cows, would you agree with that?

20 A I don't know whether
21 I could agree with that statement as an average. That
22 doesn't sound realistic to me. I would have to
23 check that.

24 Q I didn't mean it as an
25 average. I was saying, though, that it could go,
26 it can go as high as that in some herds.

27 A Well, potentially it
28 could possibly, but one would have to go to every
29 piece of literature and get the data on that.

30 Q All right, now --

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1 A As a matter of fact, I
2 think the productivity levels that we have recorded for
3 the Porcupine^{herd}/are in some years quite higher than the
4 norm for other caribou herds.

5 Q Yes, now perhaps Dr.
6 Banfield has some information that could help us
7 on whether there is a difference in productivity
8 per 100 cows of calves in the Porcupine herd as compared
9 with other herds?

10 WITNESS BANFIELD: Yes, I
11 certainly don't agree with your suggestion that it
12 could go as high as 90% plus. You are then estimating
13 the number of cows that were barren or not fertilized,
14 or calves, or female calves -- I don't think there is
15 any possibility. With reindeer management in the
16 Delta they tried to secure a great a fertility rate
17 as possible and 75% was a very good fertility
18 rate, so I think that your estimate is out of line.

19 Q You'd say that 75% would
20 be as high as it would go on the average in a herd
21 that you could study in this way? I guess that means
22 that a herd has to be of a certain size before you
23 can get into this kind of statistical analysis that
24 would follow --

25 WITNESS JAKIMCHUK: It is
26 very difficult to draw a conclusion, or make a statement
27 of an average condition, because this varies according
28 to major caribou herds and it varies on a yearly basis,
29 and without going back to every recorded instance of
30 it, one can't reach an average figure.

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1 Q All right, well, let's
2 stick to the Porcupine herd, because that is the
3 one that we are really concerned with. You are
4 satisfied with my estimate of 50 per 100 adult cows
5 as being somewhere in the middle of what you surveyed,
6 somewhere between 47 and 66?

7 A It is a figure in the
8 general area of what we would expect, or, you know,
9 what we'd expect to find in any given year.

10 Q How many calves are
11 you left with in the fall when the main aggregation
12 takes place or has taken place?

13 A You are left with
14 a lesser number. We have not specifically gathered
15 data on that point, however.

16 Q All right, if I suggested
17 to you that it was around 15% of the total live births,
18 would you say that that is an estimate that is too
19 low?

20 A I have no basis for
21 making that estimate. Once again, that figure may
22 be in the area, it may not. I don't know.

23 Q All right. Now, did
24 you count the herd without looking at percentage
25 success per birth or anything like that? Did you
26 count the herd in the main aggregation prior to
27 fall migration to determine how many calves there
28 were as a percentage of the total herd, that is, calves
29 born in the spring of that year?

30 A Well, we've done that in

1 the post-calving aggregation period, however, you must
2 remember that following that post-calving aggregation
3 there are a number of things happen with the caribou.
4 They go through extensive summer movements, they
5 go through an August dispersal, and then they gradually
6 coalesce again for the fall migration. So, there
7 is no real fall aggregation, so to speak. It is a
8 post calving aggregation.

9 Q All right, and would you
10 say then that there is no way of comparing the mortality
11 rate of the Porcupine herd with, say, the Bluenose
12 herd to see whether there is any particular characteris-
13 tic of this herd that --

14 A There are ways of doing
15 that, yes.

16 Q And did you do that?

17 A Mortality rates?

18 Q Yes.

19 A Not as a specific study,
20 not as a specific study. We made notations of types
21 of mortality and approximate levels that we felt were
22 taking place, for example, by wolves, for example,
23 mortality owing to the human kill. We have not, however,
24 carried out a specific mortality study on the herd.

25 Q And would you agree
26 that this is an important thing to know in order to
27 determinè the ability of the herd to maintain constant
28 numbers or to come back from a decline that is caused
29 by either natural or a manmade cause?

30 A It is an important thing

1 to know if you are in the business of game management
2 where you are setting seasons and establishing harvest
3 levels. It is absolutely vital to have those vital
4 statistics. It is not necessarily that relevant
5 in the consideration, for example, of a pipeline
6 routing. It is not as relevant as the distribution,
7 for example.

8 Q Right, now, you are
9 saying that, if I can define it closely, only in
10 terms of pipeline and related activities, not the
11 fact that that will bring more people into the
12 country and perhaps create a need for more game
13 management, etc.?

14 A Well -- what is your
15 question, sir?

16 Q You have said that you
17 don't need to do the kind of studies to determine
18 this mortality rate except as it concerns game
19 management which doesn't concern pipelines?

20 A I think that is essen-
21 tially what I have said.

22 Q All right.

23 A There is a need for
24 this type of information for game management purposes.
25
26
27
28
29
30

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1 Q Did you determine whether
2 or not that kind of information is available for this
3 herd?

4 WITNESS JAKIMCHUK: It is not
5 available in a large amount of detail, no.

6 Q So --

7 A That's why I'm so concerned
8 about the Dempster Highway.

9 Q Yes, so it's unknown at
10 this point what percentage kill this herd can support
11 even without a pipeline. A: It can be extrapolated on
12 data from other herds. For example, the excellent
13 studies carried out on the Kaminuriak herd by the Wild-
14 life Service, I think, can provide some insights into
15 this for game managers.

16 Q All right, but --

17 A At a general level.

18 Q Yes, because you have
19 said that you can't compare two herds without doing
20 some of the studies to see if there's a different
21 mortality rate, a different birth rate, more old cows
22 dying off in one herd than another a year earlier than
23 they would from one to the other. These are things
24 you have to know in order to make these forecasts for
25 a particular herd. Would you agree?

26 A To properly manage it,
27 yes.

28 Q Now, can we take it
29 from your evidence and Dr. Banfield's that we have
30 a low, or a birth rate in the low range comparing it

Banfield, Gunn, Hemstock
McCart, Jakinchuk
Cross-Exam by Bayly

1 other caribou herds?

2 A I don't think so.

3 Q You said we don't have
4 enough evidence to make that assessment, or what is
5 the problem?

6 A I don't think the birth
7 rate is in the low range, but I would have to specifi-
8 cally check some of the other figures for other herds,
9 you know, to be positive on that.

10 Q Dr. Banfield, you've
11 studied other herds and I just wondered whether you --

12 WITNESS BANFIELD: I think
13 you've misrepresented my testimony.

14 Q Not intentionally.

15 A The very opposite is
16 a fact. The birthrate of the Porcupine caribou herd
17 is unusually high compared to other herds.

18 Q Right, so you'd say that
19 more calves are actually born per 100 cows in the
20 Porcupine herd than say in the Kaminuriak herd.

21 A Well, that's a generality
22 that's difficult to make. For what year? Over what
23 period of time? Is the comparison valid? I can't
24 respond to that.

25 Q So you're saying that it
26 has to be done on a year to year basis.

27 A The years I studied, just
28 to give you some -- the years I studied the Kaminuriak
29 herd in 1948-49, the calf crop was 90%. Now there is a
30 valid comment; but I can't tell you what it was last

Banfield, Gunn, Hemstock
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Cross-Exam by Bayly

1
2 year or the year before last, or how it would relate
3 to the Porcupine caribou herd.

4 Q How many years do you
5 think you'd have to study a herd, Dr. Banfield, to know
6 whether they were in the period of decline or a period
7 of increase, or a stable period with regard to additions
8 to the herd, as compared to mortality of either calves
9 or older animals.

10 A Well, it's an impossible
11 question to answer. They're dynamic. One herd may be
12 going up, another herd going down, and it's only the
13 data that you produce year by year that indicate the
14 conclusion.

15 Q Would you agree then --
16 and this is a question for you and Mr. Jakimchuk to
17 share -- would you agree that it may be impossible to
18 tell, say the Porcupine herd declines during or after
19 pipeline construction, to tell whether that has natural
20 causes or causes related to increased human presence,
21 or causes related to disturbance from the various
22 activities that have gone on?

23 A I like that question, Mr.
24 Bayly. The answer is "Yes."

25 Q Yes, it's difficult to
26 tell whether that has happened. Would you agree with
27 that, Mr. Jakimchuk?

28 WITNESS JAKIMCHUK: It would
29 not be difficult to tell what the status of the herd
30 is in terms of its total number. It can be censused

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Cross-Exam by Bayly

1
2 again; but to establish the cause-effect relationship
3 could be quite difficult. It may be possible to get
4 some pretty accurate insights into that, however.

5 Q All right. Do you feel
6 you have the baseline data that would allow you to
7 look at the changes in numbers of the herd and extrapol-
8 ate the causes? Or are there gaps that you would like
9 to see filled before having to do that?

10 A Well, you just touched
11 on probably the most difficult area of population
12 dynamics of wild populations, and even if one had a
13 jar full of amoeba it's very difficult to establish the
14 cause-effect relationship. So for any given specie
15 it's a difficult thing to establish biologically cause
16 and effect.

17 Q But you're not throwing
18 up your hands, I take it, you're preparing to monitor
19 the pipeline as it relates to the Porcupine caribou
20 herd so that you can see whether there are activities
21 that you can at least theorize have or have not adverse
22 effects on the herd.

23 A Yes. Well, we're theoriz-
24 ing that all, actually on a continuing basis. In all of
25 the caribou literature, one can read the Russian liter-
26 ature as well, the general cause-effect of caribou
27 population fluctuations has been identified as
28 predation as well as human kill, human hunting, and
29 in virtually every herd where there has been a decline
30 recorded these factors have operated either singly or

Banfield, Gunn, Hemstock
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CrossExam by Bayly

1
2 together, and are associated with that. So that I would
3 expect that these would be areas that you were to look
4 at, if a decline were to take place.

5 Q And you can't just look
6 at a single factor, I suggest to you. You may have to
7 say that a certain storm event coupled with human
8 activity on the North Slope may have caused a decline,
9 that's about as close as you're likely to be able to
10 get to it. Would that be true?

11 A Well, you're asking, you
12 know, a hypothetical question here. It's difficult
13 to respond to.

14 Q Well let me put it just
15 in a more general way without a hypothetical. Dr.
16 Banfield has said that the population is dynamic, it
17 fluctuates from year to year. If you say one year
18 the calf crop is 47% of adult cows --

19 A 47 per hundred.

20 Q Yes, and another year it
21 goes up to 66, you may not know the reason for that
22 or the group of reasons, whether they be natural or
23 otherwise.

24 A Well, that's quite possible,
25 yes.

26 Q So to measure the effects
27 of a pipeline or a related activity on the herd may,
28 because of the dynamic fluctuations, be next to impossible.

29 A On the activity of the
30 herd, did you say?

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 Q To measure the impact of
3 a pipeline-related activity on the herd may be next to
4 impossible, because it's only one of the things that
5 may affect the herd over a long migration, over a
6 variety of seasons, over a number of places where
7 people naturally kill them.

8 A It's one factor that
9 we've examined very, very closely to try to establish
10 what the potential effects would be, and what the
11 likelihood, the probability would be of an adverse
12 impact. But it is one factor, you know, within the
13 total population dynamics of the caribou herd.

14 Q When will you know that
15 the herd is even declining, if it does decline for
16 whatever reasons? How many years would you think it
17 would take to be able to figure that out?

18 A If the herd is declining?

19 Q Yes.

20 A Well, one can conduct an
21 annual census and I think quickly establish a trend.

22 Q Well, as I understand, in
23 some years the entire crop of calves of a herd can be
24 wiped out, and the next year may be very good, and so
25 that in terms of that two-year average the herd you
26 would say is stable.

27 A This has been documented
28 for some caribou herds. It's not the normal occurrence,
29 however, for an entire calf crop to be eliminated.
30 We have never had evidence of anything approaching that

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 with the Porcupine herd.

3 Q All right, even if the
4 entire crop isn't wiped out, if a large percentage is,
5 I put it to you,
6 and that happens from time to time/even with the Porcupine
7 herd, that more calves will survive in one year than in
8 another, and that a decline may only result when you have
9 several years of declining, or several years of low
10 calf productivity combined with normal kill, then you
11 have reaching maturity a smaller number of cows
12 capable of bearing calves.

13 A If those events were to
14 happen you'd have a decline, yes.

15 Q And would you agree with
16 me that it's something you can't measure in one or two
17 years. It may take a considerable period of time
18 before you can realize that it is actually happening.

19 A That a decline is
20 occurring?

21 Q Yes.

22 A I would say that your
23 time interval there is a year. You can get data, the
24 most accurate data on a post-calving census and if there
25 were major traumatic effects upon a caribou population
26 with an annual census I think this could be quite quick-
27 ly identified.
28
29
30

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Q Now, some of the problems
2 that cause mortality to calves are quite beyond our
3 control and we wouldn't want to control them, at least
4 in the state of, the way we are trying to manage
5 game. We don't go off and try and kill all the
6 mosquitoes to make sure that they don't bother the
7 young calves and the cows, in fact the whole herd,
8 do we?

9 A No.

10 Q But that does kill
11 animals?

12 A I have heard reference
13 to mosquitoes debilitating calves to the point of
14 death, yes.

15 Q Yes, and in fact I
16 think you showed a film in which there was on the
17 ice a calf that mention was made it may have had its
18 death contributed to, anyway, by the effect of flies
19 upon it.

20 A Yes, I saw the film. I
21 didn't show it or take it, but you see, it is very
22 difficult unless one does a micro-autopsy to establish
23 what causes -- what the approximal or distal
24 cause of death is.

25 Animals can be weakened, for
26 example, in the case of mosquitoes, weakened due to
27 other factors, and then the mosquitoes are the apparent
28 cause of death.

29 Q All right, they may be
30 weakened to such an extent that they don't survive the

Banfield, Gunn, Hemstock
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Cross-Exam by Bayly

1 migration or the wintering, they don't put on the weight
2 that they should put on?

3 A Yes, there are things
4 that can happen. There are diseases, there's mastitis
5 in cows, for example, that prevents them from lactating,
6 and, you know, a number of things in any population
7 that can happen that result in mortality, natural
8 mortality.

9 Q My concern, Mr. Jakinchuk,
10 is one I am sure you share, that if you have got a
11 pipeline activity that you are concerned about and
12 you are monitoring during and after construction, it is
13 very difficult to tell whether it is that activity
14 which is contributing to any apparent decline in a
15 caribou population because there are so many other
16 potential causes, natural and other human causes?

17 A It would be difficult
18 to tell, that is why we prefer to avoid any potentially
19 damaging interactions. In other words, taking the --
20 I guess what is referred to as looking at it from a
21 downside risk point of view, and try to achieve protec-
22 tion by avoidance.

23 Q Now, that, of course
24 is not always possible. You try and minimize that, I
25 take it, as much as you can?

26 A Minimize what?

27 Q The contact --

28 A Yes.

29 Q -- between, in this
30 case, caribou and man. Mr. Williams, for example,

1 wanted to know how big a herd we were talking about in
2 the spring that would be large enough to cause him
3 to call off his men until they had passed by. So
4 you get brought in, or someone like you gets brought
5 in at that stage to say whether this is an impact that
6 should be minimized, whether the caribou should be
7 herded, or whether they should be left alone and the
8 people should withdraw, or whether they should just
9 be ignored?

10 A We would be involved in
11 that process, I am sure.

12 Q All right, and you have
13 to make a judgment there, based on what you think
14 would be possible, as a result of this disturbance of
15 their normal activity, whether it diverts them from a
16 place they would otherwise go or frightens them when
17 they are about to have their calves?

18 A Well, there are many
19 levels of making a judgment. The first level is
20 carrying out the baseline work so that you ensure you
21 are avoiding confrontations or interactions as much as
22 possible to begin with. There are the acquisition
23 of data, say, during the time of construction to try
24 and avoid these problems before they occur and then
25 if something that is unforeseen or not anticipated
26 does happen, you have got to make an on the site
27 judgment, once again, as to what you think is the
28 best course of action. It is not all left to the
29 final stage of the strung pipe over the pipeline.

30 Q All right, so the

1 statement that you make at page 50 of your prepared
2 evidence, in the second paragraph, where you state that
3 it is your opinion that the proposed pipeline, if it is
4 constructed, operated and maintained in accordance
5 with the plans contained in the volume cited, will not
6 have a major adverse impact on mammals, that is a judg-
7 ment on your part based on your feeling that you
8 can from time to time come in and judge the possible
9 impacts on the herd and make the proper recommendations
10 to the applicant of whether he should stop an operation,
11 alter it, or ignore the presence of the animals.

12 A Well, it is based on
13 more than that. It is based on four and a half
14 years of involvement with this project. It is based on
15 the recommendations we have made relating to routing
16 and scheduling in the course of that evolution and
17 it is based on the -- what we feel, how we feel the
18 applicant will design and build a pipeline. It is
19 not all contingent upon the, on site inspection or
20 visit. That statement, you know, my opinion is based
21 on --

22 Q I accept it that you are
23 the ideal person to do that because you have been
24 studying this particular herd prior to the firming
25 up of the route and you will have that background. It
26 is not as though they have somebody who has never
27 seen the herd before making these judgments, but you
28 will have to make them from time to time?

29 A It is possible that
30 there, judgments will have to be made, yes, it is

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1 possible, but in most cases, in most cases unlikely, I
2 would think.

3 Q And if you do have to make
4 these judgments, you will have to assess them. If there
5 is an apparent decline in the herd, you will have to
6 assess your own judgment to find out whether you feel
7 you were right, whether something you had decided had
8 an effect on the herd, or whether the herd declined
9 for completely other reasons?

10 A I don't really agree
11 with that inasmuch as the way you phrased that. You
12 imply that at any given time and for any given
13 judgment, the entire Porcupine herd is in jeopardy and
14 this is not really the case with very rare exception,
15 the exception being the post-calving aggregation. This
16 herd at times is a very loose aggregation, even on the
17 calving ground. It is more individuals occupying
18 very large areas; so, you know, I can't agree that
19 every single decision governs the welfare of the
20 entire population. The herd is only a herd at
21 periodic intervals during a year.

22 Q Yes, and yet the pipeline
23 crosses the entire summer range.

24 A No, it does not.

25 Q It covers an area which
26 is potential range for the entire herd, is that
27 correct?

28 A The pipeline covers a
29 portion of the range of the herd, yes, but it does not
30 by any stretch of the imagination cover the entire

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 summer range.

2 Q If you had an airplane --

3 A It doesn't even cross
4 the entire summer range.

5 Q If you have an airplane
6 that flies along the route of the pipeline and flies
7 over the caribou, it may fly over a large number of
8 them , not just one or two?

9 A At what time of the
10 year?

11 Q Say calving time, just
12 before the machines are pulled out of construction.

13 A Well, it is possible
14 that in a long flight where caribou are occupying
15 areas, that an aircraft could fly over a total number
16 that would add up to quite a few, but I would, you
17 know, to give you an example, during the calving
18 period, a linear flight, straightline flight over
19 the calving ground, would probably not impinge on
20 even one per cent of the herd. That is just an
21 estimate.

22 Q All right.

23 A Because they are
24 scattered.

25 Q Have you worked out
26 the way --

27 THE COMMISSIONER: Excuse
28 me, scattered over the whole of the plain?

29 A In the foothills, and
30 it varies from year to year, but they may be scattered

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 right from the Blow River to the Canning River, you know,
2 over a 4,000 square mile area, so that is the type
3 of distribution you are looking at.

4 THE COMMISSIONER: Well, we
5 are told that you can generalize about these things.
6 They move from the mountains to the coastal plain to
7 calve in May and June, as I recall the evidence, and
8 if they were all strung out on the coast, that is,
9 next to the water, next to the sea, you could theoretically
10 cally, going from Shingle Point to Prudhoe Bay, fly
11 over every one of them.

12 Now, you are saying, I know
13 it is not like that, but you are saying that it isn't
14 even remotely like that, they're all over the coastal
15 plain and some even in the mountains calving.

16 A As a matter of fact, the
17 calving progression itself, most of the activity appears
18 to be in the foothills, actually, south of the alignment,
19 and what happens, there tends, and this varies
20 from year to year, but they are widely distributed, and
21 after the calves are dropped there is a general
22 westward movement, a coalescing that takes place, a
23 gradual coalescing westward and then northward where
24 the post-calving aggregation takes place. So they are
25 in a state of flux, and early in calving they are
26 thinly distributed over the landscape and as each day
27 progresses you can see groups beginning to gradually to
28 coalesce and animals beginning to move. What I am saying
29 is, that, you know, we don't think that there should be
30 disturbance during that time, but in answer to that

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 question, if you did take a flight, you would be
2 contacting individuals or small bands rather than
3 massive herds.

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WITNESS BANFIELD: Mr.

Commissioner, may I add one comment in explanation of your question? The fawning occurs primarily on bare ground or perhaps invariably on bare ground, and because of the ice in the Beaufort Sea being close to shore, the cold and the snow is limited to the coastal area and the first ground that becomes bare are the hills. The northern slopes of the Brooks Range and British Mountains, and that is why the majority of the herd would calf between the pipeline and the range, so your theoretical flight from Shingle Point along the coast to Prudhoe Bay, quite fairly, I agree with Mr. Jakimchuk, the chances are it would cross a very small number of fawning cow caribou. Now at a later date towards the end of June, then it would be entirely different. Your flight would then see the majority of the herd because that would be in the post-calving aggregation period.

Q Mr. Jakimchuk, Dr. Gunn has given us a maximum tolerable flight frequency for birds at certain times of the year. Have you provided the applicant with what you feel is a maximum flight frequency tolerance of caribou at various sensitive times?

WITNESS JAKIMCHUK: No, we have not. We have not done that.

Q All right, and do you plan to do that sort of thing so that the applicant will know in terms that it can plan by, how many flights, what height, what times of year certain regulations

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 should apply?

3 A We don't really plan to
4 do that because we don't consider it to be that vital
5 a consideration with respect to caribou, inasmuch as
6 altitudinal guidelines of 2,000 feet have been estab-
7 lished. Our aircraft disturbance studies demonstrated
8 that disturbance by fixed wing aircraft began to wane
9 and waned considerably at the 600-foot level. We tacked
10 on another 400 feet as, you know, as a safety precaution
11 in our recommendation. Subsequently, the -- owing,
12 I think primarily to the bird disturbance data, the
13 minimum altitude was raised to 2,000 feet. Therefore
14 we feel that there is an ample, you know, safety margin
15 there, that flight frequency in itself is not that
16 significant a fac_tor. There are a couple of other
17 things involved there too, and that is the accommodation
18 or habituation that appears to take place with mammals,
19 you know, with frequency that would tend/^{you}to believe that
20 habituation actually results in less disturbance with
21 frequency; and the other factor is, in answer to a
22 question, why didn't we study it, or why have we not
23 studied it, we don't have the luxury of the bird people
24 in dealing with a population that stays in one area.
25 It's very, very -- virtually impossible to get quanti-
26 tative data on a mobile ungulate species of that nature.

27 Q All right. You did do some
28 experiments with them, and I'd like to ask you questions
29 along the lines of those I asked Dr. Gunn with regard to
30 the compressor station noise simulator. Now let's start

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1 with the senses that you consider most important for
2 caribou.

3 A Do you want me to --

4 Q Yes, if a caribou is
5 going to be warned of a potential danger, what will be
6 the senses that --

7 A I would consider that
8 their visual senses are one of their main mechanisms,
9 particularly response to motion.

10 Q All right, if you sit
11 still, in other words, the caribou might not see you;
12 but if you waved your arms he might.

13 A Correct, or on the other
14 hand, if you were a caribou you're very interested in
15 seeing a wolf come running at you, you see, so they're
16 quite conditioned to visual response to danger.

17 Q May I suggest to you that
18 since they are also in large numbers, they're used to
19 movement and they also depend on their noses to let
20 them know whether it's friend or foe. It's harder to
21 approach them if they're down-wind of you than if they're
22 up-wind of you.

23 A Yes, this holds true for
24 any ungulate. They do utilize their noses, but their
25 threshold of alertness as a result of olfactory reception
26 is far lower than the visual, far lower.

27 Q All right, and would you
28 place their sense of hearing below that of sight?

29 A In terms of what I feel
30 is important, in terms of their --

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1 Q Yes.

2 A I would place it, yes,
3 I would place it below that of sight.

4 Q Now the experiments which
5 you conducted with regard to the compressor station
6 noise simulator was a hearing test, if you will, it
7 tested the reaction of their hearing to certain foreign
8 noises.

9 A Yes.

10 Q All right, it didn't
11 simulate the look of a compressor station.

12 A No.

13 Q It didn't simulate the
14 movement of men around the compressor station.

15 A It wasn't designed to
16 simulate that. There were from time to time movement
17 of men at the experimental study sites.

18 Q All right, it may then have
19 tested the scent of man. I gather it didn't test some
20 of the other scents that would be associated with a
21 station, perhaps the smell of some of the burning
22 fuels or --

23 A No, we didn't test that
24 although there was ^{the} sound simulator required fuel to
25 run the generator and there were exhaust fumes from that.

26 Q All right. Now, the reason
27 I asked you that was it, appears that other people have
28 different opinions as to the value of scent, and I'm
29 referring here to a volume called:

30 "The Behaviour of Ungulates and its relation

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1 to management,"
2 the University of Calgary, Volume 2, it's a volume,
3 I think is edited by Dr. Geist and a Dr. or Mr. Walther,
4 and I'm referring to a paper that you have referred to
5 yourself called:

6 "The Behaviour of Ungulates,"
7 paper No. 29 by Arthur T. Bergerud.

8 A Yes.

9 Q Now, on page 579 of this
10 paper there is a paragraph that reads as follows:

11 "Scent seems to be the most discerning sense
12 which can release flight behaviour. A strong
13 scent received prior to visual contact commonly
14 will cause immediate flight, often the excitation
15 leave the scene. When an object is seen
16 the animals can possibly relate to distance and
17 await further development. Scent may offer less
18 clues to the proximity of danger. Noise dis-
19 turbances in the absence of sight or scent usually
20 have little impact."

21 Kelsall, 1968.

22 "I studied a herd in Newfoundland that wintered
23 one mile from the Canadian National Railway and
24 two miles from the Trans-Canada Highway. The
25 sounds of trains, cars, chain saws and dynamite
26 produced no visible reaction."

27 Now I take it some of that may be acclimatization.

28 A It may well be.

29 Q But would you agree with
30 Bergerud that in fact scent is the most important sense

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1
2 he seems to say that?

3 A Well, it all depends on
4 what you're asking me. If you're speaking about scent
5 as a survival mechanism, versus eyesight in terms of
6 its relative importance to a caribou in predation or
7 scent as a behavioural factor, vis a vis cow-calf rel-
8 ationships, it depends. As I've said, it's important
9 for ungulates in general, but it's my feeling that
10 scent, the sense of smell in caribou is not as important
11 as it is, for example, in moose or in white-tailed deer.

12 Q All right, but Bergerud
13 says, and he's referring specifically to caribou here,
14 that scent seems to be the most discerning sense which
15 can release flight behaviour. Would you agree with
16 that statement?

17 A Which may cause? I'm
18 sorry, I don't have that before me so --

19 Q All right.
20 "Scent seems to be the most discerning sense
21 which can release flight behaviour."

22 A I'm certain that it
23 could under certain conditions. However, you must
24 remember that thousands of caribou migrate through the
25 Village of Old Crow. We've documented in one of our
26 Biological Report series a response to seismic camps
27 and airstrips and so on, and without the indication of
28 flight behaviour, and certainly scent can precipitate
29 flight behaviour but whether it is a significant, you
30 know, factor in disrupting caribou is another question.

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1 Q All right now, on the
2 subject of disturbance behaviour again -- I'm a little
3 farther up this page -- he would agree with you with
4 regard to sight as it pertains to ^{movement}. He says as
5 follows:

6 "Caribou are adapted to perceiving motion
7 but have difficulty detecting motionless
8 objects. Wolves must often approach caribou
9 in the open."

10 Mac, 1970.

11 "Wolves must have been an integral part of
12 their perceptive environment since caribou
13 in large herds tolerate the close approach
14 of wolves, and flight is commonly not released
15 until the intention movements of the predators
16 are recognized. The speed of caribou and
17 wolves are closely matched so that a caribou
18 can perhaps afford to wait for a close approach
19 in order to gain more information on the intent
20 of the predator."

21 Would you agree with that statement, or would you --

22 A I would agree with that
23 statement.

24 Q All right now, the reason
25 I question you about this, Mr. Jakimchuk, is because I
26 want to know what of value to this project, your noise
27 simulators tested, and whether they by themselves may
28 have been too selective to tell us anything about the
29 impact of a compressor station?

30 A Well, I think they're of

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1
2 value inasmuch as compressor stations are a feature
3 that will be permanent on the landscape, and we had
4 no information of a quantitative nature, of a statisti-
5 cal nature of the response of animals, such as caribou
6 -- primarily caribou -- to loud noises such as would
7 emanate from a compressor station. We felt it was
8 important to see what that response was, to see if it
9 had an effect on deflecting them, on creating distur-
10 bance, exciteable behaviour and so on. We did have
11 some imperical or observational evidence related to
12 human facilities, such as buildings, and human activity,
13 and that is the, you know, objects that we looked at
14 that caribou had encountered in their migration. But
15 no quantitative data on that particular. It was an
16 unknown and we felt it's worthwhile to establish what
17 the effect would be.
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1 Q All right, so you know
2 now the effect of the noise, but the cumulative
3 effect of the noise and the buildings and the people
4 and the airplanes is something that you must
5 extrapolate from that observat^{ion} with the noise simula-
6 tor and others?

7 A The cumulative effect
8 is something that we would extrapolate, yes.

9 Q You can't tell me, in other
10 words, that from that experiment, that compressor
11 stations will not bother caribou at any time?

12 A We can tell you about
13 compressor station noise and in combination with our
14 other evidence give you a judgment as to what the
15 total effect of a compressor station on caribou would
16 be and my judgment is minimal.

17 Q Yes, and that is what I
18 am interested in. I just want to make sure that that
19 test did not conclusively prove that caribou and
20 compressor stations can interact completely success-
21 fully.

22 A Well, the only way you
23 could do that is to actually erect a compressor station.

24 MR. BAYLY: Yes --

25 THE COMMISSIONER: That is
26 the only way we'll know.

27 A That is right.

28 THE COMMISSIONER: We will
29 adjourn in a minute, for lunch, Mr. Bayly. I wonder
30 if you gentlemen over lunch, and since you will be with

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1 us no doubt tomorrow as well, would think about some-
2 thing that concerns me. Artic Gas says that if they
3 bring Prudhoe Bay gas along the North Slope, or along
4 the Northern Yukon, across the Delta, and then join
5 the supply leg bringing Delta gas southward, you can
6 build this trunk pipeline and ^{there} will be economies
7 of scale by delivering American and Canadian gas to
8 the south in the same pipeline that make it advantageous
9 to Canada and the United States to build it.

10 Now, that is a matter that the National Energy Board
11 has to consider. I mean, they have to consider whether
12 in fact there are economies of scale there that
13 mean the gas can be delivered much more cheaply than
14 the Foothills proposition would allow to be delivered,
15 from Canada to southern Canada, and there might be
16 considerations of high policy that the government
17 itself would have in mind in determining which pipeline
18 ought to be built, if one, indeed, has to be built.

19 Now, this Inquiry has to say
20 to the government, what the impact of this pipeline
21 will be on the north, and so far as you gentlemen
22 are concerned, the impact of the pipeline on the
23 northern environment. Now, you have been trying to
24 assess for me, the impact on the North Slope and the
25 Delta crossing. I have also been asked to advise
26 the government on the difference between the impact
27 of the Arctic Gas pipeline and the Foothills pipeline.

28 Now, the biggest difference,
29 apparent even to the youngest person in this room would
30 be that the Foothills pipeline does not come along the

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1 North Slope of Alaska, doesn't come along the North
2 Slope of the Yukon, and doesn't cross the Delta,
3 that would not be impacted as we say in this trade,
4 that we have built up here.

5 Now, that is an important
6 consideration, presumably, that the government will
7 have to weigh when it gets my report and the Energy
8 Board's report that talks about cost of delivery.

9 One thing that concerns me,
10 and you have dealt with it, Mr. Jakimchuk, and so
11 has Dr. Banfield. The government has decided, as a
12 matter of policy that they are going to complete the
13 Dempster Highway, and I think that they are supposed
14 to complete it by 1977. That is not before the
15 Inquiry, that is a given, so to speak, and I am
16 concerned, and you gentlemen both obviously are about
17 the impact of the completion of the Dempster. If
18 you were to complete the Dempster, what would the
19 impact be on the Porcupine herd? Has anyone studied
20 that in the same way that you people have studied the
21 impact of the construction of a gas pipeline along
22 the North Slope? Do we know anything about the impact
23 of the Dempster? In other words, if the government
24 said at the end of the day, "Well, we --" Suppose
25 the Americans said this, too, they said, and their
26 representatives from the Government of Alaska have
27 given evidence here and they do not wish to cross the
28 Arctic National Wildlife Range -- suppose the Government
29 of Canada said, "Well, we think it would be right then
30 not to cross the North Slope, and we would elect...",

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1 the government might say this, "We would elect for the
2 Foothills proposal."

3 Now, in the meantime, this
4 highway is being built and it has an impact. If you
5 go to those lengths to preserve the Arctic National
6 Wildlife Range in Alaska, in effect to do the same
7 thing in the Northern Yukon, to avoid crossing the
8 Delta, perhaps the Delta doesn't come into this quite
9 so much, maybe it does, what are you doing by building
10 the Dempster? What are you doing to caribou? What
11 are you doing to birds, to fish? Do we know? Have
12 you people made any kind of assessment, any kind of
13 judgment?

14 Well, just think about that
15 and if you want to make some remarks on that subject,
16 feel free to do so at the time of your own convenience.

17 Let me see if I can put it a
18 little more clearly, because, you see, if this argument
19 of Arctic Gas is sound, and it is for the National
20 Energy Board to decide, not for me; that there are
21 economies of scale to be gained by building this
22 48" line and bringing your gas from Prudhoe Bay along
23 and your gas from the Delta south, and then you go
24 south from there; if that argument is sound, it may
25 well apply to oil. We found oil in the Delta,
26 a group's been formed to build an oil pipeline.
27 Now, we know that Prudhoe Bay is the largest pool
28 of oil in North America and the largest gas field in
29 North America. The President might open up Petroleum
30 Reserve No. 4, which lies to the west of Prudhoe Bay,

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1 he has
2 and in fact he wants to, made that clear, he said he
3 was awaiting congressional action, that is what the
4 Alaskan representatives told us.

5 Now, if the same argument
6 were made, "Well, we can have economies of scale
7 with regard to the delivery of oil, so we will bring
8 the Canadian oil and additional American oil out
9 together." These are projections of what might or
10 might not happen, that we are all in a position to
11 make and they are all equally accurate or inaccurate,
12 I suppose, but if you built a gas pipeline and then
13 you built -- and suppose that you looped it, I am
14 talking about a gas pipeline across the North Slope
15 of Alaska and the Yukon, and suppose you looped it
16 to bring additional gas by that means, and then
17 suppose the same argument was made about oil, so that
18 you established an important energy corridor across
19 the coast there.

20 Now, if you say, "I don't like
21 the look of that, if you can take gas out via the
22 Foothills proposition at the same cost or maybe not
23 much more, then we should just leave that whole
24 north coast inviolate", and that is what Mr. Parker,
25 the Commissioner of Highways from Alaska wants to
26 do, that is what Dr. Weedon from the Governor's Office
27 wants to do. Now, if Alaska wants for reasons of
28 policy to take the gas south along their existing
29 energy corridor, but leaving that aside for the
30 moment, what is the impact of the Dempster on that
 whole region?

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1 Well, we will adjourn for
2 lunch. I hope that I am making this clear in some
3 limited fashion, because under the Order-in-Council
4 and the guidelines, I am supposed to look beyond
5 this gas pipeline and try to see what may be coming
6 along afterward.

7 There was one other question
8 that maybe you gentlemen would fill me in on afterward.
9 We have been talking about this Porcupine herd and
10 there are apparently four great herds in North
11 America, so we were told, and at least Canada is a
12 custodian for mankind of the Porcupine herd. How many
13 herds are there left in the world and where are they
14 and what are they threatened with? Just maybe after
15 lunch you could discuss those subjects, or maybe
16 tomorrow, suit yourself.

17 Well, we will adjourn for
18 lunch then, until two.

19
20 (PROCEEDINGS ADJOURNED TO 3:15 P.M.)
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(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

THE COMMISSIONER: Well, my apologies, ladies and gentlemen. I was in Eastern Canada last week and I think all that rich living has given me an upset stomach, so we may finish a little early this afternoon. It's nothing to do with your questions.

(LAUGHTER)

MR. BAYLY: I was going to say, Mr. Commissioner, the last one was yours, I notice.

MR. MARSHALL: Mr. Commissioner with respect to the comments you made just before we broke at noon, you asked about two matters, one related to the Dempster Highway, and sir, I'd like to look at the transcript and review it with the consultants and members of the panel before responding to that.

The other question pertained to other caribou herds elsewhere in the world. Dr. Banfield can respond to that now, sir, if you like.

WITNESS BANFIELD; Sir, I'd just like to direct your attention to information that's already available to the Inquiry. It's in the E.P.B. Environmental Impact Assessment, Volume 4, Research Report, and there is chapter 3, chapter 5 on caribou by Dr. Calef, and at figure 2 represents the distributions of ten major North American herds.

THE COMMISSIONER: Have you got this, Miss Hutchinson? I'm sure you have. It's

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Volume 2, I think, isn't it?

A Volume 4.

THE COMMISSIONER: Oh here it is,
I've got it. Thank you, thank you.

A Page 104, sir.

Q Yes, I have it.

A And over page 108, table
3, lists the estimates of the various populations of
those herds, the most recent estimates. A question
came up this morning, one of Mr. Bayly's questions
which I think is interesting. This type of information
provides another question to one of Mr. Bayly's
-- another answer to one of Mr. Bayly's questions about
the possible decline in the Porcupine caribou herd,
and if you look at figure 2 you'll see the Porcupine
caribou herd distribution has tripled, and immediately
adjacent to it, travelling the Alaska-Yukon border,
is No. 3 herd, the 40-mile herd, and if you go over
to page 8 and you look at the estimates for the 40-
mile herd, they varied from 1921, 568,000 to 1973,
to 6,000. This indicates what can be a very dramatic
change in population for one herd; but if you look at
the Porcupine herd -- I'm sorry, it doesn't list Dr.
Munroe's estimate of 30,000. During this time the
Porcupine caribou herd rose significantly from, recog-
nized a poor estimate of 30,000 to 140,000, and the
American caribou experts are quite convinced that part
of the current size of the population of the Porcupine
herd is a result of a transfer, an immigration from

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1
2 a shrunken 40-mile herd, and similar sorts of population
3 changes have happened between the other herds, 7, 8 and
4 9, so that this partly indicated my hesitancy to respond
5 easily to such a question.

6 The indications are that the
7 Porcupine herd is now No. 4 in size in North America,
8 and it's an important herd, and as for whether it's
9 the Canadian heritage to protect it, I think Alaskan
10 biologists would agree that they feel they share that
11 responsibility with Canadians.

12 Q Oh, no doubt. This
13 table 3 refers to the herd in Siberia. Did you notice
14 that at the bottom?

15 A Yes, and that is not the
16 complete population of Russia. That's the population
17 of their largest herd, in the Taimyr Peninsula, but
18 there are other wild reindeer herds in Russia and
19 several of them exceed the -- exceed some of the Can-
20 adian herds in population.

21 MR. BAYLY: I understand,
22 Mr. Commissioner, that Mr. Jakimchuk has some informa-
23 tion on that particular Russian herd as it relates to
24 the question we explored this morning on birth rates
25 per 100 adult cows.

26 WITNESS JAKIMCHUK: Yes, a
27 point of clarification on that, I think you were
28 questioning me on whether the production rates per
29 100 cows for the Porcupine herd was high, medium or
30 low, and I said that I thought it was quite

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1
2 representative of what caribou populations produce,
3 and I have the paper on that very herd on the Taimyr
4 Peninsula which is in north central Siberia, and I
5 note that over a period of time they have one figure
6 quoted here of 62 calves per 100 females. They express
7 it as .62 calves per 1,000, it's the same thing, and
8 that falls right within the range of what we have been
9 finding for the Porcupine herd with variability over the
10 years, and I might add, too, that the census statistics
11 on that herd indicate an increase from 1966, from 252,000
12 to a 1969 population of 332,000. It's the largest
13 herd in the world. So I just wanted to point out that
14 we are looking at comparable biological productivity
15 even in Asia.
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1 THE COMMISSIONER: Well,
2 thank you both.

3 MR. BAYLY: Now, if we can
4 refer to this report that Dr. Banfield has drawn
5 our attention to, Dr. Calef at page 109 suggests under
6 interchange between herds that both of the Arctic and
7 the Porcupine herds are currently at high population
8 levels, and I would ask you to comment on that, Mr.
9 Jakimchuk, is that your understanding at the moment,
10 that the population is at a high level?

11 WITNESS JAKIMCHUK: For the
12 Porcupine herd?

13 Q Yes.

14 A I would say I would
15 feel it is at quite a high level.

16 Q Yes.

17 A Yes.

18 Q How would you assess the
19 figures in table three of this report that give very
20 dramatically different estimates, say, for the
21 40-Mile herd. Are we there looking at not only
22 perhaps a great decline or a decline and an intermingling,
23 but also perhaps less effective methods of counting?

24 A Yes, I am very
25 suspicious of a single figure of 500,000 animals for
26 that herd that hasn't been documented. 10,000
27 caribou look like an awful lot and I don't know how
28 that figure was derived. I might add too, that one
29 has to look at the total range. We have a range
30 indicated at 600,000 square miles for those 500,000

1 animals, but at the time of that population estimate,
2 there was not very sophisticated aerial surveillance
3 and so on available and I am very suspect of early
4 population estimates based on one observer or a
5 visual observation on the ground.

6 Q Yes. Now, while we are
7 on the subject of range, Mr. Jakimchuk, can you tell
8 me approximately in square miles or in square kilometers,
9 however you have determined it, the extent of that
10 area used for calving on the North Slope by the Porcu-
11 pine herd and I know you can't be exact, but I think
12 that you can probably give us a figure for where most
13 of the herd does its calving.

14 A You will recall from some
15 of the slides that I have shown, or the maps, that the
16 actual calving area in any given year may be variable
17 and it may be larger in some years than in others.
18 The area that we consider as potentially utilizable for
19 calving and we draw an outside boundary on this, in
20 the order of 4,000 square miles.

21 Q And can we look at some
22 of the other areas that may be potentially significant
23 for the herd, the area in which they winter, for
24 example, how many square miles approximately does
25 that cover?

26 A Once again, it is
27 extremely variable and it is often separated in
28 distance. In other words, there will be a segment
29 that can winter in Alaska and a segment in Canada.
30 I couldn't give you one single average figure for that

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1 but it is considerably larger than 4,000 square miles.
2 It might be in any given year in the order of 15,000
3 or 20,000, but I don't want to be hung with that
4 figure.

5 Q I have heard that it
6 may be as high as 70,000 to 100,000 square miles.
7 Would you say that that's --

8 A Oh, you asked me about
9 winter range. I am saying that the total range
10 that is occupied at one time or another during the
11 annual cycle of the herd is in the order of 70,000
12 to 80,000 square miles, yes. That includes their
13 migration routes and so on.

14 Q So what you have
15 told me in the answer previously is that of that
16 70,000 to 80,000 square miles, perhaps a figure of
17 up to 20,000 square miles will have caribou wintering
18 in it?

19 A In any given year.

20 Q In any given year,
21 yes.

22 Now, when you give me that
23 answer, do you mean on any particular day that you
24 did a survey you would find that, or that they only
25 employ a certain amount of their range in a given
26 year, of their potential winter range in a given
27 year?

28 A They -- I am not
29 quite clear on your actual question.

30 Q Let me see if I have it

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1 right. There is a potential winter range that you
2 have documented and others have documented that the
3 Porcupine herd have 80,000 square miles --

4 A No, that is not --
5 that is the total range, the total distribution of the
6 herd. That is not all winter range.

7 Q Some of this is unusable
8 as winter range?

9 A Well, some of it is
10 area that they travel through on migration back and
11 forth and it may be used at some times. A lot of
12 it is mountain tops in the Brooks Mountain Range and
13 so on.

14 Q So, in that sense some
15 of it is unusable even though some of the high
16 country as you showed in your slides may be used by
17 them because of temperature inversions?

18 A That is correct.

19 Q Now, what about their
20 post-calving aggregation? How big an area do they
21 generally occupy or what are the perimeters of the
22 area that they traditionally occupy for the post-
23 calving aggregation?

24 A We have, on a yearly
25 basis, we have maps in the Biological Report Series,
26 defining this area. It has shown some variability
27 and I don't have an actual measurement that I can
28 give you right now.

29

30

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1 Q In the calving area?

2 A Yes, it is.

3 Q It's less than half the
4 size of the calving area.

5 A I would say so.

6 Q And do they go generally
7 to the same location?

8 A They go to the same
9 general area during this time, associated with Camden
10 Bay.

11 Q Yes, and what are the
12 reasons that you have either found or theorized on for
13 their going to this area which may be smaller than 2,000
14 square miles for this aggregation?

15 A Well, I think I outlined
16 some of my hypotheses in a presentation that I made,
17 in addition to my direct evidence in which I had given
18 some suggestions as to what reasons they may go there.
19 It's the post-calving aggregation that's characteristic
20 of caribou herds, has been documented many times and
21 thoroughly documented for the Porcupine, and I notice
22 even in the Russian herds this is a characteristic
23 thing. It is -- many reasons may be postulated for it,
24 but I don't think there is any one definitive conclusion
25 as to why it does occur.

26 Q Have you tied any of
27 your theories to the timing of growth of vegetation
28 in this particular area?

29 A I think that's one possi-
30 bility. I tend to, as I outlined in my paper, I

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1
2 personally tend to feel that there is evidence that
3 caribou, before they commence any major movement cycle,
4 require certain numbers of animals in association, as
5 a stimulus for migration, and I think that in an evolu-
6 tionary time frame, that aggregation may serve as that
7 stimulus for the extensive summer movements that are
8 carried out. That's one of the possibilities.

9 Q Now, what about the area
10 that I referred you to through the evidence of Dr.
11 Geist, which I understand you've had an opportunity
12 to read over lunch, the nursery area? What sort of
13 theories would you have for them coming to this parti-
14 cular area, four to 5,000 square miles, as I understand
15 that would have something to do with deciding why it is
16 vital to them, if in fact it is?

17 A Well, I've read Dr.
18 Geist's comments and he's making a very general state-
19 ment about the North Slope. That also applies equally
20 well to southern parts of Canada or the central Yukon.
21 What he has said is that that particular area, where
22 the caribou are following calving, performs a nursery
23 function. That exists for many other species and in
24 many other areas. He is referring to the productivity
25 of the North Slope and in my own presentation I also
26 pointed out that there is a reason why caribou migrate
27 and go where they do go, I think it's related to the
28 product-- the particular food requirements at that time
29 and as I say, I've already outlined some of my thinking
30 on that.

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1 Q All right. Now would you
2 agree that one of the reasons may be that even though
3 they could get the same food if they went uphill
4 instead of northward, because of the difference in
5 vegetation as you go up the mountainside, that it may
6 have something to do with trying to stay ahead of the
7 flies for a certain important period in their life?

8 A What has something to do
9 with --

10 Q The fact that they come
11 north to this area of the North Slope for their calving.

12 A Well, I think there are
13 several reasons why they do that. I think there is no
14 one particular reason. I think nutritional require-
15 ments of lactating cows are best met by the forage and
16 exiophorum , the cotton grass is in bud at that time.
17 I think the calving ground is certainly snow-free
18 earlier than other areas of their range. It tends to
19 be -- where they calve tends to be drier. I think there
20 are a number of environmental influences that over a
21 long period of evolution have caused them to develop
22 a traditional pattern of going to that area.

23 Q All right, what about the
24 question of predators? As I understand, you find more
25 wolves denning in their winter range than you do on the
26 North Slope. Would you agree with that?

27 A Yes, I would agree with
28 that general statement. We have, our own data indicate
29 greater numbers of predators south of the calving range
30 than on the calving range.

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1
2 Q And these are predators
3 that don't in general migrate with the herd, they are
4 there when the herd is wintering but they don't all
5 follow them.

6 A They do to quite an
7 extent until such time as the wolves, in particular,
8 have a very high propensity for following caribou
9 herds. But this particular behaviour seems to cease
10 when the wolves themselves engage in denning activity.

11 Q And then they seem to
12 stop somewhere short of the calving area in their
13 denning sites.

14 A There are some
15 wolf dens within the calving area and within that area.

16 Q I don't mean to be exclu-
17 sive, but generally speaking there are more wolves that
18 do their denning south of the calving area.

19 A I would say generally
20 speaking, yes.

21 Q Yes, and so one of the
22 things that you would want to avoid, I would submit,
23 would be to stop -- you don't want to stop the northward
24 migration because even though caribou would survive
25 because they might have similar vegetation, as you
26 pointed out, in the mountains south of their normal
27 summering range, it might not be enough to support
28 them all. There might be more predators, there might
29 be a combination of factors that would make it difficult
30 for them to survive in the numbers that the herd now

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maintains. Would you agree with that?

A You're going to have to break that down for me a little bit. You have gone through quite a bit there. I don't think I did conclude that they have similar vegetation, for example, on the North Slope as in southern areas.

Q All right. O.K., well let's do it this way. I have a quote here from Dr. Banfield from the environmental review meeting of April 12, 1973 on this problem at page 16, section 2 of B, and perhaps you would -- I'll read you the comment and perhaps you could comment on it, or perhaps I could invite Dr. Banfield to explain his concern on it. Now, he starts in, without the comment before, leading up to it, but I think it becomes clear as we go through it, at the top of the page:

"You have hit one of our real critical problems, so much so that we are opposed to this whole route. I knew that I would get some slight cheer. Well, this actual sheet is crossing the main migration route of a large section of the Porcupine caribou herd, some tens of thousands of caribou will actually cross the line about Section 7, and they do it at least twice a year, and could do it four times a year in the late summer migration, if the late summer migration comes down this far. So we have a major concern here as to the timing of the construction and unfortunately the spring caribou migration to

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1
2 this area is April when you would probably be
3 interested in still winter construction, this
4 type of blasting and shooting would be most
5 disruptive of that. I must report that it would
6 be intolerable to have such disturbance at that
7 time because^{if} the caribou are turned back south-
8 ward, we have no idea where they would go or
9 where they could go, except a very large detour
10 into the Porcupine Highlands and northward again.
11 In fact they would probably try to make several
12 crossings before they would detour so far, and
13 if they detour so far then the fawning would be
14 a great risk because they may be some weeks out
15 of stage and have no chance to reach the Arctic
16 coast to fawn. You know, I just don't know what
17 to tell you except it is a dreadful situation.
18 Let's try to pin down some of the timing in
19 this because,"

20 and this word is "A-S-W-E" and I'm not sure what that
21 is,

22 "this is a high rock area here and we have done
23 some evaluation just to see what summer construc-
24 tion could be done in this area, and while^{we}
25 don't feel that summer construction is an
26 economical operation, unless there is enough of
27 it, so I think we have shown this still as a
28 winter area and haven't we -- unless we have
29 actually shown summer work in here."

30 Now I know that's a long quote and I wouldn't give

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1
2 you a long quote except that it's one that was said
3 by one of the members of the panel, and perhaps he
4 can help sort it out. But I think the basic concern
5 is clear, that if something happened to turn the herd
6 back into the mountains, to interrupt their arriving
7 at the fawning ground, that it would be difficult, if
8 not impossible, to predict what would happen, and that
9 there would be some dangers that Dr. Banfield has said
10 would be real concerns.
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1 A I am very concerned
2 about that and that is one of the very compelling
3 concerns that I had to deal with and the reason
4 why I prefer the coastal route to the Interior Route,
5 the margin of safety that is provided that would
6 avoid that type of eventuality or possibility, I
7 should say.

8 WITNESS BANFIELD: Perhaps
9 I should just interrupt, the way that meeting was
10 held, we broke up into groups and I was the mammalogist
11 dealing with a section of the Interior Route and
12 my trip over to advise Mr. Jakimchuk was the fact
13 that there was no indication as to where it was and I
14 mentioned to him, as a matter of fact that is a main
15 rat pass in the Richardson Mountains that we are
16 speaking, and all the quote is not mine, it is
17 an engineer. The last part of it is probably
18 Mr. Williams coming in about construction.

19 Q You are probably
20 right, it is very difficult to tell from this trans-
21 cript just who is speaking. This is all attributed
22 to you, anyway, Dr. Banfield, and I would be unfair
23 to say that it was you if it were not --

24 MR. MARSHALL: Are you talking
25 whether the vegetation was the same on the North
26 Slope as in the mountains and I found the whole thing
27 kind of confusing because that's what I thought you
28 had asked Mr. Jakimchuk about, whether they could
29 get the same food in the south as they could in the
30 north, and --

1 MR. BAYLY: My understanding,
2 Mr. Commissioner, was that we'd finished dealing with
3 that and I am sorry if the question was not entirely
4 clear to Mr. Marshall, but I thought that the witnesses
5 had a little trouble with them.

6 Q I would suggest to you
7 then, Mr. Jakimchuk, that interruption either from
8 the north or from the south of this migration for the
9 purpose of calving and feeding in the summer, is of
10 concern, whatever route you take, if some of the
11 activities are likely to cause it. I am not saying
12 they are, but that would be a concern you would want
13 to put forward at all stages to make sure that
14 nothing stops this northward migration.

15 A I have been stating
16 for a number of years that one of my main concerns
17 is anything that might interrupt migratory activities
18 of large portions of the herd and that is why scheduling
19 is an important consideration and why the location
20 of the coastal route in the associated scheduling
21 is one of the major mitigations of anything of that
22 nature.

23 Q All right, here is a
24 kind of problem I would like your comment on. Assume
25 that construction is going ahead and you want to make
26 sure that it doesn't interfere in the construction
27 year with this migration, and assume you are building
28 the pipeline along the North Slope, is it your under-
29 standing that either you, or someone who has had
30 the kind of experience you will have, would be monitoring

1 the progress of the caribou to be able to tell Mr.
2 Williams or whoever is in charge of the construction,
3 "The caribou are coming faster this year than we
4 expected them in normal years. You better make sure
5 you are out of there by such and such a date."

6 A Yes, that would be
7 my expectation and that was our recommendation that
8 we do precisely that, just in the event that there
9 is some variability.

10 However, I should point out,
11 too, that one of the reasons for a very intensive
12 surveys of the herd is to establish likely parameters
13 and variabilities in timing.

14 Q I realize that you will
15 want to be able to predict in a general way what is
16 going to happen, but that you may run into events like
17 the one that I have described and had Dr. Gunn
18 speak about where, for example, the geese are forced,
19 by natural causes from one staging area to another,
20 where you would want to be able to, really on very
21 short notice feed this information into the builders
22 to let them know that there was a crisis on the way
23 from the point of view of the species that you were
24 interested in.

25 A Well, that is the purpose
26 of the monitoring, in the event that some aboration
27 occurred. Let me say that the earliest caribou have
28 ever been recorded arriving in a migratory sense on the
29 calving ground is the 15th of May and the most normal
30 time for that arrival has been quite consistently the

1 third week of May, and it is dates like that this
2 that we are of course interested in because that is
3 the basis of our prediction and we would want to
4 monitor during the time of ^{the year of} construction just
5 in case.

6 Q Well, this is the
7 idea of course, this is why you do your studies
8 before hand and I appreciate that you want to be able
9 to look at your watch and say, "There they are right
10 on schedule", but you also want to be in a position,
11 if they are coming to a certain stage too quickly,
12 not only to say you have to stop, but perhaps also
13 to be able to suggest to Mr. Williams what he should
14 be doing. If he doesn't pull out of the area entirely
15 you will want to be able to say to him, "They are
16 going to come right across the area where you have
17 strung out the pipe. You better turn the pipe at
18 right angles to the ditch."

19 A We have already said
20 these types of things, yes, and, yes --

21 Q Yes, and you will want
22 to be able to give this specific kind of advice because
23 it will be asked for, the what to do, not just giving
24 the information that the caribou are coming?

25 A Yes, and we already
26 have presented -- as a matter of fact some of it is
27 presented in the Biological Report Series itself as
28 to what should be done in the eventuality of a contact
29 with caribou during construction.

30 Q Right, and Mr. Hemstock,

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1 we may find at various points in time, that Mr. Williams
2 inundated with requests, and I don't say that this
3 is likely but it is possible, that there may be several
4 environmentalists who say, "The geese are coming, the
5 caribou are coming, and watch out for the foxes", and
6 he will be asking what to do in all those things
7 and this has to be co-ordinated so that not only the
8 animals can be protected, but so that an intelligent
9 conducting of the project can take place, would you
10 agree with that?

11 WITNESS HEMSTOCK: Well,
12 the environmental monitoring is a job for the
13 environmental inspectors. You have been dealing
14 with the caribou, that we regard as a very special
15 case and that will require monitoring well outside
16 of the pipeline right-of-way, and that information
17 will be fed daily to the man in charge of the spread
18 and also to the office in Calgary.

19 Q And you have stated,
20 Mr. Jakimchuk, in this cross-examination and in
21 your evidence in chief, that in all the movements that
22 the caribou make, their arrival is the most predictable,
23 that is, their arrival in the calving grounds, in
24 terms of date --?

25 WITNESS JAKIMCHUK:

26 A Is the most what?

27 Q If it is the most
28 predictable?

29 A There are other movements
30 that are quite predictable in terms of the summer
movements, but that particular thing is, yes, the most

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1 predictable element that we have found.

2 Q And their return on
3 their migration is far less predictable because I
4 suggest to you, it may depend on the weather conditions,
5 on the first snow which appears to cue them into really
6 starting and you can't predict exactly when that
7 is going to happen?

8 A We know within general
9 limits when it occurs. The precision of the prediction
10 is not as great as arrival in the calving grounds, but
11 then, once again, we are talking about margins,
12 margins of when interactions could take place. Say,
13 construction, in the margin between the time they
14 normally leave the North Slope in the fall and in
15 the summer, is greater. There is a greater time
16 period between that and the onset of construction --

17 Q Oh, of course --

18 A -- than there is in
19 the spring.

20 Q We do face the pre-
21 construction activities of staging and gravel mining
22 and a number of other things, setting up of camps, I
23 would presume, but it will involve numbers of people
24 and aircraft and machinery being staged in the area,
25 would you agree with that?

26 A These activities would
27 take place, but in which area are you referring?

28 Q Well, if we think of
29 the North Slope as the area in which these activities
30 would be taking place in a number of specific locations?

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1 A Yes, these activities
2 would take place, but that doesn't necessarily follow
3 that there will be caribou at all times that activities
4 are taking place.

5 Q I am not suggesting
6 there will be, but you have to deal with their less
7 predictable movements as well as their most predictable
8 movements in monitoring them, not only for construction,
9 but for the other related activities, you would agree
10 with that?

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1 A Yes, we have had to
2 deal with that.

3 THE COMMISSIONER: I'd like
4 to break for coffee, but before we do, can I come back
5 for the benefit of Mr. Marshall and the panel to the
6 point I raised before lunch, and let me put it this
7 way, gentlemen, because it seems to me this is a point
8 of great importance to Arctic Gas. I'm not suggesting
9 you all should write this down, but at any rate we have
10 two companies that want to build this pipeline, Arctic
11 Gas and Foothills. Arctic Gas will carry gas from
12 Alaska along the coast and across the delta. Foothills'
13 project will not require any construction from Alaska
14 along the Arctic coast or across the delta. Now,
15 Foothills will say to this Inquiry, "You should advise
16 the Government of Canada that there is a significant
17 difference between the two projects. Our project, the
18 Foothills project, will cause no environmental damage
19 or disturbance at all along the Arctic coast or across
20 the delta." The extent of the damage and disturbance
21 that the Arctic Gas line from Alaska would cause is
22 a matter that we're trying to determine right now at
23 the Inquiry.

24 In any event, at the end of
25 the day the Government of Canada has to weigh up the
26 significance of the damage and disturbance, whatever
27 its extent, /^{that} the Arctic Gas proposal will cause along
28 the Arctic coast and the delta. They will have to weigh
29 that along with the cost advantages to consumers in
30 Southern Canada that the Arctic Gas proposal presents.

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1
2 That is if indeed it is true that Arctic Gas can
3 deliver gas at a lower unit cost than Foothills can,
4 I'm assuming for the moment that they can. That's for
5 the National Energy Board to decide anyway, not for me.
6 But what I am trying to do, with the assistance of
7 you gentlemen, is to put the impact of that line from
8 Alaska in perspective. I said this morning it could
9 be greater with the passage of time than it appears
10 now. That is, we have a proposal to build a gas pipeline
11 from Alaska, in years to come with the route of the
12 gas pipeline established, a second gas pipeline might
13 be proposed, an oil pipeline might be proposed. In
14 any event, what I am concerned about, and I think it's
15 in the interest of Arctic Gas that this should be
16 brought out, is what is the extent of the damage and
17 disturbance owing to the construction of the Dempster
18 Highway? The government has said it intends to
19 complete that highway by 1977, that will occur anyway?
20 This is a point that concerns the Porcupine caribou
21 herd.

22 If the government were, out
23 of concern for the environment to say, "No, we will not
24 allow a line from Alaska to be built because whether
25 you take the coastal route or the interior route, you
26 cause a measure of damage and disturbance to the herd
27 that we are not prepared to accept."

28 If you do that and the highway
29 is built, then what is the impact of the highway that
30 occurs notwithstanding the refusal to allow the

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pipeline from Alaska to go ahead? Do we know what the impact of the construction of the Dempster has been so far? If we don't know, what would we have to do to find out? And can you assess the impact of the Dempster on the caribou herd, in comparison to the impact of a gas pipeline from Alaska on the caribou herd? I've limited this to caribou because my understanding from Dr. Gunn's evidence regarding birds was that if there were no pipeline from Alaska, at least no pipeline along the coast, he'd be happier with that situation, and the Dempster Highway does not appear to be a threat to the birds that have their nesting grounds on the coast or in the delta. Maybe it is a threat; if it is, I hope someone will tell me that.

At any rate, I simply try to make myself a little clearer than I did this morning and I think it's important from the point of view of Arctic Gas to make sure we do take a look at the Dempster because it's part of the picture in terms of impact that the government should have before it.

Well, we'll stop for a minute for coffee.

(PROCEEDINGS ADJOURNED FOR FEW MINUTES)

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1 (PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

2
3 THE COMMISSIONER: Well, we
4 will come to order, ladies and gentlemen.

5 MR. BAYLY: Mr. Jakimchuk,
6 when we left off -- I have been reminded, Mr. Commissioner,
7 that I was going to make an inquiry into the status
8 of the caribou panel since we broke a week ago Friday.
9 I'd understood that there was going to be some
10 discussion between you and Mr. Scott so that we would
11 know the status of that panel.

12 MR. SCOTT: Well, Mr. Com-
13 missioner, subject to your rulings, our proposal is
14 that there should be no such panel, that each of the
15 participants is prepared to call its evidence in the
16 ordinary ways we have done and we would propose to con-
17 tinue that process through. The Northern Assessment
18 Group is agreeable to that.

19 Then at the end of that
20 exercise, if it should appear that there are
21 fundamental differences of view, by the experts on
22 caribou, or indeed by any other of the experts, that
23 can be elucidated and explained by a round table
24 of that type. We will then consider making plans
25 for it. But our proposal at the moment is not to
26 have one, simply to have had one, but that process
27 can best be used to explain and debate views that
28 have already been developed by evidence in cross-
29 examination.

30 THE COMMISSIONER: Well, I k

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1 don't know whether this is possible, but I thought
2 that since the CARC witnesses come last, as I under-
3 stand it, and they deal chiefly with caribou, that
4 if Foothills and Arctic Gas, and Commission
5 Counsel have their own experts here at that time to
6 assist them in the cross-examination, it might well
7 be we could arrange for the panel or the debate, the
8 round table debate to occur in the final stages of
9 that evidence, and I think that what Mr. Scott has
10 said is along the same lines, but he is less
11 enthusiastic about it than I am as you can tell.

12 MR. BAYLY: Well, I can
13 appreciate, Mr. Commissioner, that if every caribou
14 expert agrees on every point, there is little merit
15 in discussing it, but it appears now that it may
16 take place, provided that the applicants and Commission
17 Counsel agree to have their witnesses available at
18 and at the end of the Canadian Arctic Resources
19 Committee's evidence on caribou.

20 THE COMMISSIONER: Which
21 would be during the third week of this month --

22 MR. SCOTT: I think, Mr.
23 Commissioner, it would be in January. In fact, I
24 think it evident that Mr. Anthony's evidence will
25 take up this three week period.

26 THE COMMISSIONER: Well, I
27 don't seem to be getting anywhere with this --

28 MR. SCOTT: Mr. Commissioner,
29 can I suggest that it is very difficult to organize
30 a round table of experts retained by various participants

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1 until we know what they are going to direct their
2 minds to, and to assign them a topic under the C)
3 caribou, is not really going to be productive of an
4 interesting morning's discussion, and it would be
5 much more useful if after all the panelists have
6 called their evidence, it may appear that there are
7 two or three issues related to caribou that require
8 further probing and would benefit by an exchange of
9 views in a round table and then the round table
10 would be set up, limited primarily to those two or
11 three issues. Then, it seems to me, that we would
12 get some meaningful discussion of them and useful
13 exchange. But to simply suggest as was originally
14 done by one of the participants that we should have
15 an exchange on principle, is, in my respectful view,
16 not going to advance the Inquiry's work, and may
17 waste a good deal of time, though it would be
18 amusing to watch.

19 THE COMMISSIONER: Well,
20 that is -- I think I will close off the discussion
21 on this. We are not getting anywhere, but to be
22 fair to Dr. Banfield who raised the matter in the
23 first place, I think he contemplated the panel
24 representing all points of view occurring right in the
25 beginning of any discussion of caribou and points of
26 view being elucidated in that way. But we have
27 elected to proceed in the conventional way, leaving
28 open the option of having a round table discussion
29 at the conclusion of the CARC evidence which will be
30 the last evidence on caribou. I think that we will

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1 leave that option open and take a look at things
2 halfway through the CARC panel and try to arrange
3 it then if it is appropriate for the last week in
4 December or the first week in January -- I mean, the
5 last week of sittings, or the first week of sittings
6 in January.

7 MR. HOLLINGWORTH: And I
8 take it, sir, that that would be the proper time to
9 make representations about the entire concept of the
10 debate as well?

11 THE COMMISSIONER : Well,
12 yes, when we discuss it again, early in the third
13 week in December, if you object to the whole idea,
14 you had better object then.

15 Who does, by the way, and
16 there is nothing wrong with objecting to the
17 idea, even though Dr. Banfield and I thought of this --
18 (LAUGHTER)

19 THE COMMISSIONER: -- that
20 doesn't mean that you are bound to go along with
21 it. Mr. Scott is only grudgingly even prepared to
22 discuss the whole idea. I have forgotten, but I
23 think I canvassed you before. Who objects to it?
24 Mr. Hollingworth --

25 MR. HOLLINGWORTH: I have
26 reservations.

27 THE COMMISSIONER: Do you
28 object, Mr. Marshall?

29 MR. MARSHALL: Well, sir,
30 I think that given where we are now in that Mr.

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1 Jakimchuk has given fairly extensive evidence about
2 it, that it seems kind of reasonable to me to proceed
3 in the usual way and at least get everybody's position
4 out on the record on cross-examination, and so I
5 guess I fall into line with Mr. Scott pretty well. Let's
6 take a look at it later, it seems it would be useful
7 to do it at that point.

8 Sir, you had mentioned just
9 prior to our breaking, again about the -- Oh, I am
10 sorry, Mr. Veale had something he wanted to speak
11 about.

12 MR. VEALE: Thanks, Mr.
13 Marshall. Just a comment, Mr. Commissioner. The
14 debate, it seems to me would be of little value
15 unless it was orchestrated to the extent that there
16 was a chairman who had control of the panel and
17 could effectively keep it from going off track and
18 keep it on particular points, and that seems to me to
19 be the area of difficulty, who will be the chairman,
20 unless you wish to chair it yourself.

21 THE COMMISSIONER: Well, I
22 had thought that I would be the chairman. I don't
23 see how you can have a panel here with somebody
24 else chairing it. Whether that would keep it on the
25 track is open to question, but we'd have to do the
26 best we could.

27 MR. BAYLY: Mr. Commissioner,
28 one more thing before I begin the cross-examination
29 again. I have distributed on behalf of the Canadian
30 Arctic Resources Committee two summaries or actually

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1 the transcript, if you like, of the direct evidence
2 of its first two witnesses in this phase.

3 THE COMMISSIONER: Right.

4 MR. MARSHALL: If I could
5 interrupt Mr. Bayly once again then, sir, you asked
6 the panel if they would speak to this question of the
7 impact of the Dempster Highway. They are prepared
8 to do so now, sir. They haven't had a great deal of
9 time to give consideration to it and I'd ask you to
10 take that into account. These are their preliminary
11 thoughts on this subject, but in response to your
12 request they are happy to speak to that matter now
13 and I think Mr. Jakimchuk, particularly, will address
14 the question of the interaction of caribou.

15 THE COMMISSIONER: Right,
16 go ahead, sir.

17 WITNESS JAKIMCHUK: Mr. Com-
18 missioner, you have asked on a couple of occasions
19 very direct questions regarding the Dempster Highway
20 and I hope that I can be direct in my response.

21 Number one, it is my opinion
22 and judgment that the potential impacts of that highway
23 on the Porcupine Caribou herd are many orders of magni-
24 tude greater than a chilled, buried, winter constructed
25 gas pipeline. I do not feel that there is a threat,
26 a major threat to that herd from the pipeline, but in
27 the absence of detailed wildlife management procedures
28 and policies, I feel that there is a distinct threat
29 to the Porcupine herd.
30

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1
2 This threat constitutes human access through their
3 winter range and through one of their major spring
4 migration routes.

5 THE COMMISSIONER: Now, just
6 so we're -- you're talking about the Dempster, are you?

7 A Yes.

8 Q You didn't say that but
9 I assume you are.

10 A The Dempster Highway.
11 Uncontrolled access, vehicular travel, hunting, all of
12 which require some very detailed regulation to safe-
13 guard the status of that herd. I don't wish to cast
14 aspersions upon the capabilities, for example of the
15 Yukon Territorial Game Branch to undertake that, how-
16 ever, they must have a mandate to do so and they must
17 have funding to get the types of information they re-
18 quire to ameliorate the effects of that highway.

19 I should point out, for
20 example, that involvements of native communities will
21 be required to safeguard the herd in terms of hunting
22 mortality, if and when that highway passes through the
23 Richardson Mountains where up to 25,000 animals may pass
24 on that restricted spring migration, in the face of
25 uncontrolled hunting, and at present for native peoples
26 there is no bag limit or season. It obviously will have
27 a very singular effect on the herd.

28 I think that there has been
29 insufficient research done to date on the implications
30 of that highway. It is one of my major concerns with

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2 respect to the Porcupine herd, and I have by my state-
3 ment, hoped that in some way these will be articulated
4 in other areas. I have no particular comments to
5 make on impacts on other mammals at this point. I have
6 not studied the routing in any detail, but I would like
7 to stress to you that if there is a threat to the
8 Porcupine herd it resides in an uncontrolled situation
9 on the Dempster Highway. There are, I feel, mitiga-
10 tory measures that can be employed to minimize this
11 to a very great extent, but even in the presence of
12 these, there are impacts that are unlike and will exist,
13 that are perhaps significant to a greater extent than
14 for a pipeline.

15 MR. MARSHALL: I believe, sir,
16 Dr. Gunn could comment as well with respect to the
17 impact there might be on birds.

18 WITNESS GUNN: I would just
19 like to add my comments to those of Mr. Jakimchuk.
20 I highly support what he has said. As far as birds
21 are concerned, the direct impact of the Dempster High-
22 way is of course not nearly as great. I anticipate that
23 there would be increased hunting along the route and
24 that the use of skidoos and all-terrain vehicles would
25 enlarge the scope of that. I am far more concerned,
26 sir, about the indirect effects and related effects of
27 uncontrolled access. To me the Dempster Highway is just
28 the tip of the iceberg and I feel it is high time that
29 the Councils of the Yukon Territory and Northwest
30 Territories and the Department of Indian & Northern

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2 Affairs take a very direct look at how they propose
3 to control access to that country. If the intent
4 is to keep wildlife at its present levels of population
5 and in the areas where it is, then some sort of control
6 is very necessary, and is necessary soon. Like Mr.
7 Jakimchuk, I am extremely concerned about the impact
8 of that type of disturbance, human access, human move-
9 ment in areas where they previously not have been in
10 large numbers.

11 MR. MARSHALL: Dr. McCart,
12 I think, has a few remarks with respect to fish, sir.

13 WITNESS McCART: I have had
14 a list of points that I would like to make about the
15 Dempster Highway. The first point I'd like to make is
16 that there in fact was no preliminary impact assessment
17 of the potential environmental effects of that particular
18 highway, and it's also true that there have been no
19 detailed baseline studies conducted along most of it.
20 I should point out that most of my remarks deal with,
21 or are applicable particularly to the portion of the
22 highway which is west of the Mackenzie River. Parts of
23 the highway which are east, are in fact part of the
24 Mackenzie, would form part of the Mackenzie Highway if
25 it eventually reaches that point, and there has been
26 some work done in that vicinity.

27 The construction of that highway
28 is to -- one of the -- an opportunity for people to
29 find out exactly what happens as a result of a major
30 construction project in the north, and it seems to me

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2 we have missed an opportunity here to actually monitor
3 the effects on aquatic environments on the construction of
4 a road like the Dempster Highway. As I say west of the
5 Mackenzie there have, as far as I know, been nothing in
6 the way of detailed monitoring to find out what the
7 effects, for instance, of sedimentation has been, what
8 the effects might have been on benthic invertebrate
9 populations, what the effects of the construction of
10 this highway might have on migrations and movement
11 patterns of fish. It's a missed opportunity to get
12 information of this kind.

13 I understand that there have
14 apparently been some impact assessments done after the
15 construction of a highway for that area west, and I am
16 not certain that these are publicly available. If they
17 are, I would certainly like to obtain copies and examine
18 them to see what information is available.

19 MR. MARSHALL: Dr. Banfield has
20 some remarks as well, sir.

21 WITNESS BANFIELD: My general
22 concern about the Dempster Highway relates to the
23 route. It crosses the grain, so to speak, of the
24 normal migration routes for both animals -- both mammals
25 and birds northward and in fact it even crosses the
26 grain of the immigration routes of people because it
27 leads from Dawson City in the Central Yukon to the
28 Mackenzie Delta, to Fort McPherson in the Mackenzie
29 Delta, and as Dr. Gunn has mentioned, there is a grave
30 risk of a relatively uncontrolled influx of southern

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2 people and if you look at the pattern, it will be
3 extremely easy for people from Alaska to now reach
4 Fort McPherson and the Mackenzie Delta via the Dempster
5 Highway. It does not reinforce the Mackenzie Valley
6 as a transportation corridor, but cuts across the grain
7 of the normal country pattern. It also gives access to,
8 of course, a virtual wilderness area of the Northern
9 Yukon, uncontrolled access; a road is a most uncontrolled
10 of all types of possible transportation corridors.

11 Both Dr. Gunn and Mr. Jakimchuk
12 mentioned the possible strain on the populations of
13 birds and mammals and fish that have lived in that
14 previously wilderness area.

15 Dr. McCart mentioned the lack
16 of knowledge of what environmental impact analysis had
17 already been conducted. Simply by name I am aware of
18 a report by Schultz International Consulting Company
19 dated 1972, that was purportedly an environmental
20 impact assessment of the Dempster Highway. It has not
21 been released, as far as I know. I have checked with
22 Dr. Fyles on that subject. It does not appear to have
23 been amongst the government articles released.

24 Also there is a large question
25 dealing with environmental impact procedures and the
26 highways have been appraised by the EARP method,
27 that's the Federal Government's Environmental Assess-
28 ment Review Process or policy, I'm not quite sure what
29 the "P" stands for, but it involves in-house environ-
30 mental review and so the highways have been apparently

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MCCART, Jakimchuk
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2 reviewed either by an environmental appraisal panel
3 that consisted of D.O.E., Department of Environment
4 people, or even possibly a regional screening review
5 panel, which again is an entirely internal departmental
6 or interdepartmental committee, and according to EARP
7 the release of the environmental statements that are
8 being reviewed is entirely ^{at} ministerial discretion,
9 discretion not only of the Minister of the Environment
10 but also what they call the Initiating Department, in
11 this case it's probably the Department of Public Works.
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rather concerned with this Mackenzie Valley assessment, pipeline assessment document because, as you know, and as your guidelines, we have to consider cumulative impact and a few days ago I think we made some sort of outburst on our frustration in trying to do environmental, cumulative environmental impact, when in fact the first large facility, namely, the highway was in fact a closed book, or it was difficult to get the information. But this document is particularly exasperating because the authors have an attitude that the highways are already accepted, that the impact of the highways is an accepted base upon which they view the cumulative impact of a proposed pipeline as an additional impact and they are not worrying about the initial impact.

about some very curious illogical statements which you find in the report. For instance, on page 360, the authors are concerned about the cumulative effect of the highway and pipeline construction crews using the same borrow pits, and the emphasis is again on the cumulative impact of the construction crews of the pipeline people over and above what the general tone is an acceptable impact of the highway construction.

that the Dempster Highway will reduce some environmental impacts by providing ready access. This is what I mean, they accept the Dempster Highway without consider-

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ing it in their general views. Again, concerns are expressed by the truck travel on the Dempster Highway. The truck travel caused by the construction of the pipeline, on the Dempster Highway as being cumulative environmental impact, as if you could distinguish between that truck traffic and previous truck traffic. Or, how about, they are very concerned, page 288, with the pipeline staff hunting from the Dempster Highway on the caribou winter range. Or, on page 215, dealing with sensitive valley crossings, there is a great list of concerns, risks, about pipeline crossings of valleys, but on page -- that is on 215, the concerns they mention about the pipeline construction crossings, while on page 260:

"River crossings close to the Mackenzie Highway would reduce concerns about terrain damage in the movement across the sensitive river valley."

Again, no mention about the same concerns that must have been there for the construction of the highway. It is generally this frustrating, when you try to tackle a problem such as cumulative impact, it is most frustrating to find this illogical block, road block thrown in your way.

MR. SCOTT: Mr. Commissioner, may I make two points. First of all, I share Dr. Banfield's regret that the Assessment Group was not authorized to inquire into the impact of the Dempster Highway, or indeed any other highway or any other project except this particular gas pipeline --

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McCart, Jakimchuk
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1 THE COMMISSIONER: Or any
2 other pipeline.

3 MR. SCOTT: Or any other
4 pipeline. That point I think he has made and will be
5 graciously accepted by the Assessment Group.

6 The second point, he referred
7 to the Schultz report. Last week Arctic Gas indicated
8 that they were having some difficulty getting the
9 government reports and Dr. Fyles asked them to
10 produce a list of the reports that they were unable
11 to get and wanted to get. They produced a list of
12 17 such reports, 11 of them were on the government
13 list and had they had reference to it, could have
14 been obtained in the usual way. The other six, I
15 gather, Dr. Fyles is looking into. The significant
16 point is that the report that Dr. Banfield now refer
17 to, which he says he was unable to get from Dr.
18 Fyles, is not listed on that list of 17, and if he would
19 be good enough to give us the name of it, and what
20 detail he can as to when it was made, we will add it
21 to the list and then see if we can find it for him.

22 THE COMMISSIONER: All right,
23 that is the Schultz report.

24 MR. SCOTT: Well, the Schultz
25 Company has made a number of reports and a number of
26 Schultz reports are on this list, but not the Dempster
27 Highway report that Dr. Banfield refers to.

28 THE COMMISSIONER: Okay, well,
29 Mr. Bayly, we are back to you. We keep interrupting.
30

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McCart, Jakimchuk
Cross-Exam by Bayly

1 How far along are you?

2 MR. BAYLY: I think you just
3 saved me about an hour, Mr. Commissioner.

4 THE COMMISSIONER: Pardon me?

5 MR. BAYLY: I think you
6 just saved me about an hour.

7 THE COMMISSIONER: Oh, well,
8 let me know when I can do that.

9 MR. BAYLY: If I could just
10 follow up that last interchange with regard to a
11 highway, would you as a panel agree with me that the
12 concern that you would be prepared to share with me
13 for the prime route, the North Slope, is that at some
14 point, the government that built the Dempster, may
15 decide that a permanent road along that slope is also
16 a good idea?

17 MR. MARSHALL: Sir, I
18 don't really think that the panel can give a useful
19 answer to that sort of question, as to what the
20 government may, in its wisdom, decide to do -- I don't
21 think that there is any evidence that the government
22 intends to build a road along there and the panel
23 could speculate as to what the government's intentions
24 are and I am sure that it wouldn't advance our cause
25 at all or the Inquiry's cause or Mr. Bayly's cause.

26 THE COMMISSIONER: Well, I am
27 not interested in the speculation that these gentlemen
28 might offer regarding government's intention, but Mr.
29 Bayly is entitled to put forward a hypothesis and to say
30 suppose this gas pipeline were built, then suppose the

Banfield, Gunn, Hemstock
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Cross-Exam by Bayly

1 government said, "Well, that looks all right, so let's
2 build a road, a highway, whatever", and they thought that
3 they would use the Dempster procedures in terms of
4 assessing impact; well, then, you might be in difficulty,
5 I think that is what Mr. Bayly's getting at.

6 MR. BAYLY: Yes, I didn't
7 mean that these gentlemen had an inside track on the
8 government's thinking, but --

9 MR. MARSHALL: They obviously
10 don't.

11 MR. BAYLY: But would you
12 share that concern, the construction of a road along
13 the North Slope would be something that you would
14 have concerns about just the same way you have concerns
15 about the Dempster; the fact that it is a highway
16 and the way in which planning and impact assessment
17 was carried for it? Mr. Hemstock?

18 WITNESS HEMSTOCK: Yes, I
19 would certainly be concerned if there was a road
20 planned across the coast.

21 Q And Dr. Gunn, we have
22 talked about tips of the iceberg, and this is the
23 sort of concern you have, if you build a project, that
24 somebody else sees as the tip of the iceberg. The
25 idea of a road along the North Slope is something
26 that you would object to, I take, as well?

27 WITNESS GUNN: It would
28 cause me grave concern.

29 Q Yes, and Dr. Banfield,
30 do you feel the same way?

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Cross-Exam by Bayly

1 WITNESS BANFIELD: Yes, sir.

2 Q Dr. McCart?

3 WITNESS MCCART: I would
4 say that probably if a road were constructed across
5 the North Slope that any mitigative measures that
6 we'd define with respect to this gas pipeline would
7 be a waste of time because of the much, much greater
8 impact of a road than a pipeline in an area like
9 that.

10 Q Your mitigative measures
11 which might be satisfactory then for a buried gas
12 pipeline with no road would just be swamped with the
13 potential natural impacts you would expect from a
14 road?

15 A Yes.

16 Q And do you feel the
17 same way, Mr. Jakimchuk?

18 WITNESS JAKIMCHUK: I would be con-
19 cern about a road across the North Slope.

20 Q Yes. Now, if we can
21 expand this a little bit. We have evidence from Mr.
22 Dau that in general the environmental consultants
23 to Arctic Gas are gravely concerned with the Interior
24 Route because it would involve going upstream along the
25 valley of the Canning River for a considerable distance
26 before coming into the interior of the Yukon, and I
27 gather it would do so according to the Alaskan
28 plan, using summer construction methods, and from the
29 point of view of your concerns with regard to the
30 mammals, Mr. Jakimchuk, in the Canning River drainage

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McCart, Jakimchuk
Cross-Exam by Bayly

1 basin, is your concern access because of the different
2 construction methods that are proposed if that interior
3 alternate were chosen?

4 A That is one of the
work
5 concerns: access. A lot of rock /would be required
6 that leaves essentially a grade which would provide
7 some type of access. There are a number of others:
8 the restrictive nature of the valley, the diversity
9 and numbers of mammal species there, the fact that
10 the disturbance would take place over an extended
11 period of time, a number of concerns.
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Banfield, Gunn, Hemstock
 McCart, Jakimchuk
 Cross-Exam by Bayly

Q Dr. McCart, would you
 feel that your concerns would be, with regard to the
 Canning, more concerns of access than concerns of
 the effects of the buried chilled gas pipeline itself?

WITNESS McCART: My concerns
 are partly access. I should point out that it would
 require an air field which is on the North Slope and
 a road as I understand it, to reach the compressor
 station which is actually up in the headwaters of the
 Canning River. Is that right, Mr. Hemstock?

WITNESS HEMSTOCK: Yes, there
 would be sections of road required between air strips
 that can't be built in the mountains, have to be built
 on the flats, and the compressor stations. There is one
 difference there, in that the road system that is
 required is not connected to outside roads which lead
 to centres of civilization. They are short sections
 of road to service a portion of the pipeline. So the
 access would then have to be along just a short portion.

Q How would these then
 differ, Mr. Hemstock, except perhaps in length, from
 the portions of permanent roads that the applicant
 would propose to build along the prime route, not
 necessarily just on the coast but in other areas where
 you're going from your borrow pit to your air strip and
 to your camp, etc.?

A They differ mainly in the
 length because there would be a requirement for several
 compressor stations to be served. Whereas the per-
 manent roads required under the proposal we have are

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1 only those to bring traffic from say an air strip to
2 a compressor station.

3 Q Well, am I incorrect
4 then in interpreting the construction plan for the
5 interior alternate along the Canning as requiring
6 a permanent road to permit summer construction?
7 I don't mean one that necessarily leads anywhere, but
8 a gravel pad from which to work.

9 A Well, as I understand it,
10 the summer construction is required because of the
11 rock work, and the right-of-way, when it is completed
12 would have a flat portion in the rock which would be
13 suitable for access from the air strips on the plain,
14 coastal plain, into the mountainous area. So that
15 you really serve two purposes. The construction during
16 summer on the rock provides a levelled -- I think it's
17 going too far to call it a road -- but a levelled
18 area which can be traveled then from the air strip to
19 the compressor station.

20 Q And has the possibility
21 of winter construction methods along the Canning been
22 explored and rejected?

23 A I can't answer that.
24 I would presume that it has but I am not sure.

25 Q Has it been recommended
26 by the environmentalists, should the interior alternate
27 be adopted?

28 A We have certainly
29 expressed our concern about the impact of summer
30 construction. I think perhaps we should ask the rest of

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McCart, Jakimchuk
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1
2 the panel. I would not expect that the impact would
3 be greatly different because as Dr. McCart, for instance,
4 has pointed out, there's overwintering fish all along
5 that and either winter or summer construction would
6 probably have a similar impact. I'm not sure of the
7 impact on say caribou. There may be - it might be just
8 as serious in wintertime as in summer because of the
9 use of some of those areas as overwintering areas.

10 Q Well, Dr. McCart, are
11 your concerns about winter construction, the fact that
12 overwintering fish are in the area that the pipeline
13 would parallel along the Canning River?

14 WITNESS McCART: Yes. Let
15 me point out that the Canning River Valley, either the
16 main fork or the Marsh Fork, is extremely narrow and
17 that in constructing through that area you do not have
18 very much latitude in avoiding critical areas, and this
19 is one of our major objections. We are particularly
20 concerned because not only is the Marsh Fork or the
21 Canning Fork, not only are these overwintering areas,
22 they are also spawning areas. There is a considerable
23 amount of spawning, so in this particular area, if it
24 were necessary to go the interior route we would prefer
25 summer construction, simply because of the potentials for
26 sedimentation of these spawning beds and the disruption
27 of spawning beds in this extremely narrow valley.

28 Q So we have a real dilemma
29 here. Mr. Jakimchuk, would you just from the point of
30 view of the mammals in the area, prefer to see a winter

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1 construction method employed if the Canning River were
2 paralleled by a pipeline?

3 WITNESS JAKIMCHUK: It doesn't
4 really make -- it's a bad spot winter or summer, that's
5 the point. I suppose that -- well, there are so many
6 considerations, one has to be concerned with Dall sheep
7 all year around, one has to be concerned with alteration
8 of limited habitat in the valley bottom all year around,
9 one has to be concerned with grizzly bear utilization
10 of the valley, and I can't state categorically whether
11 winter or summer would be better. It's an undesirable
12 area to go through from the standpoint of mammals,
13 period.

14 Q Now, from the point of
15 view of Dall sheep, we have only a small amount of
16 evidence on Dall sheep and that is from Dr Geist again,
17 and I asked you at the lunch break whether you had
18 had an opportunity to look at that. His appraisal of
19 Dall sheep, as I understand his evidence from Whitehorse,
20 is that they are a species that, provided they aren't
21 bothered in terms of harassment or by hunting by man,
22 can live in proximity to his developments, provided that
23 that part of man's activity is very closely watched and
24 monitored. Would you agree with his evidence on that?

25 A I think to some extent
26 I agree with it. I don't agree with it in its entirety.
27 Dr. Geist has described situations that have occurred
28 where Dall sheep have habituated and have prospered
29 under protection in close proximity to man and his work.
30 I think that quite possibly has occurred and I agree

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1
2 with him on that. However, a wild population that
3 has had limited contact with man at the outset of the
4 contact is not apt to display the characteristics of
5 habituation. There are other considerations as well
6 relating to habitats that are important, not just the
7 behaviour. Dr. Geist was emphasizing the behaviour,
8 the tameability, if you will, of them.

9 Q So if you reduce their
10 habitat, that is a concern as well, or prevent them
11 from going from one portion of their habitat to another.

12 A Certainly that's a concern,
13 particularly at the extremities of their range where
14 habitat is very limited.

15 Q And that would be a concern
16 in the Canning River, as I understand from your map
17 sheets and in the volume we have discussed because there
18 are locations where sheep spend time on both sides of
19 both the proposed routes.

20 A That is correct, and the
21 Canning population is the largest in North-east Alaska.
22 It comprises approximately 1,000 animals.

23 Q And in terms of the kind
24 of directions you may get in discussions with your coun-
25 terparts in Alaska, have you received preferences from
26 them or instructions from them that the Canning River
27 is an area that should be avoided?

28 A What do you mean by my
29 "counterparts in Alaska"?

30 Q Well, I mean the applicant

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Cross-Exam by Bayly

1
2 in Alaska for this pipeline route, Alaskan Arctic Gas
3 as opposed to Canadian Arctic Gas, have they given you
4 directions on this?

5 A Have they given me direc-
6 tion on what, sir?

7 Q Have they said that they
8 want to avoid this particular area, as a policy, of
9 trying to avoid parallelling the Canning River?

10 A Well --

11 THE COMMISSIONER: The prime
12 route is along the coast.

13 A -- I suppose the directions
14 have come the other way. We have said that's an area
15 that should be avoided.

16 MR. BAYLY: Q So you have
17 given that direction to them as well as to Canadian
18 Arctic Gas.

19 A Yes.

20 Q Before we leave the subject
21 of caribou on the North Slope of the Yukon entirely, Mr.
22 Jakimchuk, not all the caribou migrate off the North
23 Slope every year; is that correct?

24 A In the winters of 1973 and
25 '74, we have documented a small segment of the herd that
26 has not migrated from portions of the North Slope.

27 Q And sometimes the migration
28 is one of short distance, and for example last year
29 there was a large number of caribou compared to other
30 years in the vicinity of Aklavik that spent the winter

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1
2 in that area. Is that correct?

3 A Yes, generally correct.

4 There were considerable caribou in the northern
5 Richardson Mountains which would put it in that vicinity.

6 Q So when you are monitor-
7 ing in a particular year of construction, you must con-
8 sider the possibility that there will be aggregations
9 of wintering caribou that may potentially be, at least
10 on the old prime route, and perhaps even on the -- on
11 portions of the cross-delta route, spending their winter.
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1 A We have considered
2 that possibility from the data that we have gathered,
3 yes.

4 Q And what recommendations
5 have you made to the applicant should they run into
6 it, a population of these caribou, say, like the
7 one that wintered around Aklavik last year?

8 A Well, for one thing
9 the routing, if I may just correct, the prime route
10 as it presently exists going cross-delta doesn't
11 go past Aklavik --

12 Q Yes, I realize that.

13 A Okay, we have recommend-
14 ded that in the event of an encounter with caribou,
15 that they not be harassed away from the right-of-way,
16 that there be a slowdown of vehicular travel allowing
17 passage of the animals to take place. If there
18 appeared to be imminent danger of caribou, for example
19 contacting an open trench, we would ask that it be
20 filled in or fenced, but preferably fenced, in other
21 words, to fence off any hazardous condition to the
22 animals. The general operating principle is to
23 allow the animals to passively move away from the
24 area which we would expect they would do in the face
25 of activity without creating undue energy drains.

26 We would also recommend
27 that breaks be left in any pipe, or pipe be turned
28 at right angles to allow passage of the animals.

29 Q All right, and what about
30 blasting, did you make any recommendations about

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1 blasting?

2 A Well, we've made a
3 general recommendation, I believe, some time ago, that
4 blasting not take place adjacent to concentrations
5 of caribou.

6 Q All right, now, would it
7 be fair to characterize this as a slow persuasive
8 technique, in that because of the activity, you said,
9 the caribou would probably move away on their own,
10 should they be in the same area as the people
11 building the pipeline?

12 A That is the technique
13 that we would prefer and we are talking here about
14 sort of the worst possible position and that is
15 that caribou be associated with that right-of-way
16 at the time of construction.

17 Now, let me just make another
18 point relating to that. We know that the routing is on
19 the periphery of the likelihood of this happening and
20 we would also want to anticipate this eventuality
21 by these pre-construction monitoring surveys carried
22 out by the environmental inspection team, but what
23 we have here essentially is a contingency program
24 to deal with that case should it occur.

25 Q Have you put in this
26 contingency program any concerns that people in a
27 settlement like Aklavik might have about moving them
28 on where they might not be as accessible for the
29 purpose of hunting for the table?

30 A Well, the people of

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by bayly

1 Aklavik don't normally hunt up on the North Slope.
2 They hunt in the Richardson Mountains, and that is
3 where most of the caribou are located, and I would --
4 caribou during the wintertime make, as a characteristic,
5 random type movements throughout the area that they
6 occupy, and I would expect them to be almost constantly
7 mobile in any event. I don't think that is a great
8 concern.

9 Once again, you are not
10 dealing with the entire herd. You would be dealing
11 with individuals, say, a small group, or groups of
12 animal.

13 Q Now, on the question
14 that was raised by Mr. Bell when he was cross-examining
15 Dr. McCart, and this may be a question for you and
16 Mr. Hemstock to consider, he suggested in his line
17 of questioning a system might be devised, if there were
18 a complaint made to the pipeline company that something
19 or a series of things that they had done or participated
20 in had caused them either a loss of a resource that
21 they depend upon, or had caused them to not find it
22 where they expected to find it and had traditionally
23 found, say, a portion of the caribou herd; and have
24 you considered these kinds of problems in your
25 monitoring program?

26 A What kinds of problem?

27 Q All right, the way that
28 Mr. Bell raised it was that if there were fewer
29 caribou in the area, it may well be that local people
30 are going to say, it must be the pipeline's fault.

Banfield, Gunn, Hemstock
 McCart, Jakimchuk
 Cross-Exam by Bayly

1 A That is quite possible
 2 that they would say that, yes.

3 Q Yes, and yet they may
 4 not be in a position to prove their claim? It may
 5 not be true, but even if it were true, they may not
 6 be in a position to gather the information to figure
 7 out whether in fact it was a pipeline related activity
 8 that caused game either to -- say, a herd either to
 9 decline or to change its migration pattern.

10 Now, you will be monitoring
 11 these things --

12 A Yes.

13 Q -- and what has been
 14 suggested and perhaps Mr. Hemstock would like to
 15 comment on this, that there might be some sort of a
 16 group or tribunal look into this to determine whether
 17 or not this was something that could be attributed
 18 to the owner of the right-of-way?

19 MR. MARSHALL: This really
 20 gets into a question of policy and compensation for
 21 such matters as loss of trapping and so on. I think
 22 if Mr. Bayly wants to specify something and get a re-
 23 action as to whether Arctic Gas would be interested
 24 in that or not, we'd be happy to co-operate in that
 25 but I think the way it has been phrased is pretty
 26 general, and -- well, he may wish to refine it and
 27 put it to Mr. Hemstock, would maybe want to consider
 28 it and then give a well thought out answer to what
 29 the company is prepared to do.

30 MR. BAYLY: Mr. Commissioner,

1 I don't expect either Mr. Jakimchuk or even necessarily
2 Mr. Hemstock to give us the applicant's policy on this,
3 but what I am concerned with, because they are here,
4 I expect perhaps Mr. Horte or somebody will tell us
5 that at some point. But while these gentlemen
6 are here, they can at least tell us whether their
7 post-pipeline monitoring or during construction moni-
8 toring is designed with this sort of concern in
9 mind.

10 Certainly Mr. Hemstock
11 responded to that question in the area of fish and
12 didn't seem to have much difficulty with it.

13 MR. MARSHALL: Well, that
14 is a different question. I don't have --

15 THE COMMISSIONER: Well, I
16 remember what Mr. Hemstock said on that occasion, at
17 least I think I do and I think Dr. McCart had some
18 views he expressed as well, but you're laying the
19 groundwork for urging upon me eventually, that one
20 of my recommendations should be that, if there is a
21 right-of-way granted, certain conditions would have
22 to be laid down as to compensating people who asserted
23 that they had suffered a loss owing to a decline in
24 the fishery or a decline in the number of caribou
25 that they were able to get in a particular season; and
26 we went through this on the fish thing and it was
27 quite helpful. But you have got the same problem
28 here. I don't know whether these gentlemen can
29 help you; the problem being that if there are a
30 diminished number of caribou ; in the vicinity of

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Aklavik, McPherson and Old Crow, the people there
2 who rely on those animals for what seems to be, having
3 visited those communities, that's what the people
4 said, a large part of their diet, supplement to their
5 income of some considerable significance, what do you
6 do about those people? The cause and effect relation-
7 ship may take years to establish. So what kind of a
8 condition do you impose upon Arctic Gas who wants
9 to build? Maybe you could propose a certain type
10 of condition and ask these witnesses if they
11 see anything wrong with it. I don't know, I --

12 MR. BAYLY: I might get into trouble,
13 Mr. Commissioner, with the fact that they may not be
14 able to give the policy of the applicant and I am
15 prepared to accept that if Mr. Marshall --

16 THE COMMISSIONER: Oh, no, I
17 am not interested in the policy of the applicant. I
18 mean, we can hear that from Mr. Marshall any time that
19 we want to know it, but we're interested in what
20 these gentlemen -- and they are bringing their know-
21 ledge to bear upon the problem and I think it is a
22 problem. I don't know whether they can help us, but
23 maybe having said that, Mr. Bayly, having outlined the
24 problem -- having outlined the problem as I have
25 done, would you object if these gentlemen offered
26 their views on it? Maybe they have no views.

27 MR. BAYLY: No, sir, I would
28 be quite happy to hear their views on it.

29 THE COMMISSIONER: We went
30 through this on fish, you'll remember, Mr. Jakimchuk.

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McCart, Jakimchuk
Cross-Exam by Bayly

1 Do you want to say anything about it? Can you help
2 us, or --?

3 WITNESS JAKIMCHUK: I doubt
4 if I can help you very much. I think it is going
5 to be a considerable problem for Arctic Gas because
6 any vicissitudes that occur that people interpret
7 as being a result of the pipeline, people will be
8 concerned about that.

9 Once again I refer you to
10 the fact that, with respect to caribou, I suspect this
11 will not in fact occur. The prime routing avoids
12 any of the hunting areas for the people of Old Crow,
13 or the normal hunting areas for Aklavik or McPherson,
14 and it's on the, you know, the periphery of the
15 range. It would be difficult to establish a direct
16 cause-effect relationship, but Arctic Gas may be in a
17 position that they will have to deal with compensation
18 claims of some kind.

19 There are natural variabilities
20 that occur, but I might also point out that a great
21 catastrophe would have to occur to something like
22 the Porcupine herd for these to influence hunting,
23 for example, because you take Old Crow, there may be
24 400 to 600 caribou shot a year there and there are
25 considerably more than that number that normally
26 pass through the area in the course of a year.

27 MR. BAYLY: Now, what would
28 you then consider to be proof that would satisfy you,
29 first of all, that a decline was taking place?

30 A Well, a population

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1 estimate that was lesser than it was previously.

2 Q Over what period of
3 time?

4 A Well, a decline by
5 how much, a 10%? Or are you asking if I am concerned
6 with a 10% decline or a 50% decline over one year or
7 over three years? That is very difficult to answer.

8 Q Well, that is the
9 question that I am concerned with. Now, Dr. Banfield
10 refers to in his direct evidence to cyclical events.
11 He talks about that on page 10 where he is talking
12 about worst case as opposed to natural cycles that
13 may occur over a five to ten year period and I assume
14 that that is something that could be applied to
15 caribou in a herd like the Porcupine herd. You can
16 tell over a period of time whether they are in a
17 decline. You have given evidence in cross-examination
18 today to say that you agree with Dr. Calef that at the
19 moment they are at a high point.--

20

21

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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 A I wouldn't be that
3 strong. You're implying that they are at the highest
4 point.

5 Q No, no, but that they are
6 at a high point is what I meant to say.

7 A I consider the population
8 to be in a good healthy condition, if I may use those
9 words.

10 Q Yes, and there are natural
11 fluctuations -- Dr. Banfield has told us that -- that
12 we couldn't attribute to the Dempster Highway or the
13 pipeline activity or anything other than nature, and
14 what I am concerned with was what sort of proof would
15 satisfy you first of all that there was a decline that
16 showed a trend? Have you any thoughts on that, Dr.
17 Banfield?

18 A I would have
19 to -- I was just going to answer that, a decline that
20 showed a trend, I would have to say three years popula-
21 tion data and if one suspected you know, something
22 traumatic that had happened to the population, it
23 would have to be supplemented by biological information
24 such as composition counts, age structure of the
25 population. It's a game management type thing.

26 WITNESS BANFIELD: I have
27 been interested in the caribou that the people from
28 Aklavik hunt for a number of years and I knew this was
29 a pertinent question so I have done some literature
30 research on the topic, and using two references, one

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 a paper by Porsild on the mammals of the Mackenzie
3 Delta --

4 Q Would you spell that for
5 the benefit of the reporters, please, Dr. Banfield?

6 A Porsild, P-O-R-S-I-L-D.

7 "The Mammals of the Mackenzie Delta,"
8 published in "The Canadian Field Naturalist", 1945, and
9 also another paper by Kevan, K-E-V-A-N,

10 "The Caribou of the Northern Yukon Territory ,"
11 which was published by The Canadian Wildlife Service in
12 1970. If you review those papers which list the
13 incursions of caribou to the east slope of the Richard-
14 son Mountains, you will find that these incursions have
15 been quite rare and spasmodic. For instance, they first
16 appeared in 1927 after an absence of 35 years. They then
17 reappeared in the winter of 1931 to '32, '33-'34, then
18 they were absent for 20 years. They then reappeared in
19 1951-'52, again in 1956; they were suspected to be there
20 in small numbers in 1959, and again after a period of
21 20 years they reappeared in the winter of 1972-'73 and
22 again in the winter of '73-'74 in much larger numbers.
23 I'm just giving you this background information to indi-
24 cate the amount of information we have . It also indi-
25 cates the difficulty that people in Aklavik would have
26 in proving that if they didn't appear in another year
27 it would be quite logical to point out that they appear
28 every 20 years, as the document has indicated. They
29 appeared for two winters every 20 years and as for my
30 feeling on it, what I was advised, I would suggest that

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 the applicant had a sympathetic viewpoint towards this
3 problem. /Q: One of the other difficulties, if we can
4 go from the difficulty of proof that there is a decline,
5 is the difficulty of proving cause, and without going
6 over the ground that Mr. Jakimchuk has gone over this
7 afternoon on the subject, I would suggest that espec-
8 ially with your concerns over the Dempster Highway it
9 may be impossible to prove that either it or any pipe-
10 line related activity could be pinpointed as the cause
11 of a decline without, in the words of Dr. McCart,
12 showing me the equivalent of some dead fish.

13 A I agree, but I don't
14 want to see the dead caribou.

15 Q I quite agree, but this is
16 the difficulty in finding the cause, is that often the
17 evidence is in the fact that they've been driven from a
18 range by a bunch of hunters.

19 WITNESS JAKIMCHUK: You know
20 the real answer to that is to make sure that there is
21 no decline resulting from human activities. That's
22 what we spent five years trying to do, and that's why
23 we emphasize, you know, the need for management along
24 the Dempster Highway. That's the approach we take.
25 We're not interested in documenting historical decline,
26 we're interested in preventing such a thing.

27 Q Oh yes, I realize that,
28 Mr. Jakimchuk, and I think that's commendable. But
29 it's still something that may be beyond all of our
30 control, given your concerns with regard to caribou

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 and the opening up of the Dempster Highway.

3 THE COMMISSIONER: Could I
4 just ask one question or ask you to think about this,
5 Mr. Jakimchuk. We're going to adjourn; Mr. Bayly's
6 children have arrived and that means it's time to adjourn.

7 (LAUGHTER)

8 If you had a game warden or
9 somebody like that on the Dempster just on the outskirts
10 of Dawson, nobody could get in from Alaska or the
11 Yukon without going through Dawson and he - I don't
12 know if this is a breach of fundamental liberty or
13 something, but suppose he simply said, "No one can
14 go north with a rifle in their car." So that the
15 only people who would still be able to kill the caribou
16 would be the people in these three native villages we've
17 talked about, does that -- do you think that would be
18 effective, assuming the outraged cries of the hunters
19 would -- could be put up with?

20 A It's certainly effective
21 in the National Parks of Canada, you know, sealed
22 guns and so on but I don't think one even has to go
23 to those extremes, sir. There are ways of regulating
24 hunting seasons, openings, closings, regulating harvest.
25 I don't say that the Porcupine herd can't be harvested.
26 I think it can, as long as you know to what limit and
27 know what the safe limit is. There are ways, for example,
28 of zoning, no-hunting zones, a certain distance adjacent
29 to the highway, for example. There would be ways of,
30 at critical times like a spring migration through the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Richardsons of closing vehicular travel for certain
2 hours. There are many, many means available. The thing
3 is they have to be implemented.

4 THE COMMISSIONER: That's very
5 interesting.

6 Well, we'll adjourn till 9:30
7 in the morning then.

8 (PROCEEDINGS ADJOURNED TO DECEMBER 3, 1975)
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AUTHOR

Mackenzie Valley pipeline inquiry:

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MACKENZIE VALLEY PIPELINE INQUIRY

Government
Publications

IN THE MATTER OF APPLICATIONS BY EACH OF
(a) CANADIAN ARCTIC GAS PIPELINE LIMITED FOR A
RIGHT-OF-WAY THAT MIGHT BE GRANTED ACROSS
CROWN LANDS WITHIN THE YUKON TERRITORY AND
THE NORTHWEST TERRITORIES, and
(b) FOOTHILLS PIPE LINES LTD. FOR A RIGHT-OF-WAY
THAT MIGHT BE GRANTED ACROSS CROWN LANDS
WITHIN THE NORTHWEST TERRITORIES,
FOR THE PURPOSE OF A PROPOSED MACKENZIE VALLEY PIPELINE

and

IN THE MATTER OF THE SOCIAL, ENVIRONMENTAL AND
ECONOMIC IMPACT REGIONALLY OF THE CONSTRUCTION,
OPERATION AND SUBSEQUENT ABANDONMENT OF THE ABOVE
PROPOSED PIPELINE

(Before the Honourable Mr. Justice Berger, Commissioner)

Yellowknife, N.W.T.

December 3, 1975.

PROCEEDINGS AT INQUIRY

Volume 95

CANADIAN ARCTIC
GAS STUDY LTD.

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APPEARANCES:

Mr. Ian G. Scott, Q.C.,
Mr. Stephen T. Goudge,
Mr. Alick Ryder and
Mr. Ian Roland for Mackenzie Valley Pipeline
Inquiry;

Mr. Pierre Genest, Q.C.,
Mr. Jack Marshall, and
Mr. Darryl Carter for Canadian Arctic Gas
Pipeline Limited;
Mr. Reginald Gibbs, Q.C.,
Mr. Alan Hollingworth &
Mr. John W. Lutes, for Foothills Pipe Lines Ltd.;

Mr. Russell Anthony &
Pro. Alastair Lucas for Canadian Arctic Resources
Committee;

Mr. Glen W. Bell and
Mr. Gerry Sutton, for Northwest Territories
Indian Brotherhood, and
Metis Association of the
Northwest Territories;

Mr. John Bayly
or
Miss Leslie Lane for Inuit Tapirisat of Canada,
and The Committee for
Original Peoples Entitle-
ment;

Mr. Ron Veale and
Mr. Allen Lueck for The Council for the Yukon
Indians;

Mr. Carson H. Templeton, for Environment Protection
Board;

Mr. David Reesor for Northwest Territories
Association of Municipal-
ities;

Mr. Murray Sigler for Northwest Territories
Chamber of Commerce.

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WITNESSES FOR CANADIAN ARCTIC GAS PIPELINE LIMITED:

Alexander William Francis BANFIELD

William W.H. GUNN

Russell Alexander HEMSTOCK

Peter J. McCART

Ronald Daniel JAKIMCHUK

- Cross-Examination by Mr. Bayly (cont)

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McCart, Jakimchuk
Cross-Examined by Bayly

Yellowknife, N.W.T.

December 3, 1975.

(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

ALEXANDER WILLIAM F. BANFIELD
WILLIAM W.H. GUNN
RUSSELL ALEXANDER HEMSTOCK
PETER J. McCART
RONALD DANIEL JAKIMCHUK, resumed:

CROSS-EXAMINATION BY MR. BAYLY (CONTINUED):

Q Mr. Jakimchuk, if we can
move to some of the other mammals and some of the
possible impacts concerned with them, I'm wondering if
you have made recommendations to the applicant with
regard to the behaviour of camp personnel and employees
concerning both polar and grizzly bears in the vicinity
of camps and compressor stations?

WITNESS JAKIMCHUK: Yes, we
have recommended that people avoid, as a matter of fact,
avoid approaching any of the mammals for photographic
purposes or out of interest, to just avoid contact with
them to the extent possible to remain within the perim-
eters of the worksite, and so on.

Q All right, and one of the
problems that has arisen at various rig sites is not
so much that garbage isn't incinerated, as I understand,
but that some of the workers actively encourage the
bears by throwing scraps of food or steaks or whatever
to them.

A I've heard of this and
I think that particular type of activity is very, very
bad, inasmuch as it can create a dangerous situation
down the road. I would add, however, that on several

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 occasions I've visited the test site at Sans Sault
3 north of Norman Wells and which employed incineration
4 methods, and at that time, starting in 1971, there was
5 a strict policy relating to this type of feeding that
6 was enforced and as a consequence there were no serious
7 problems at that particular place.

8 Q And one of the things
9 about bears and in particular polar bears in some of
10 these incidents is that they are attracted to the smell
11 of cooking materials, fats and things that are being
12 cooked, and this may cause them to come into the vicin-
13 ity of a camp where a decision in some of these cases
14 has been made to destroy them. Have you thought of
15 methods that could be used to alleviate problems with
16 the bears around camps without the destruction of the
17 bears?

18 A Are you referring now
19 to polar bears or to all bears?

20 Q Let's talk about polar
21 bears in particular because these incidents that I'm
22 referring to are incidents that involve polar bears.

23 MR. MARSHALL: Perhaps you
24 could ask him first whether or not that's correct, you
25 know, the situationn you've put is right.

26 MR. BAYLY: All right.

27 Q Would you agree that
28 we are -- that that could be a problem that you con-
29 templated?

30 A I don't think it's very

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 much of a problem; it's an outside possibility with
3 polar bears only inasmuch as during the time of winter
4 construction there are two possibilities: Females may
5 be in maternal dens with cubs, and the adult male bears
6 tend to be quite wide-ranging generally in offshore
7 areas rather than on land in their activities. Now from
8 time to time they do come on land. That type of inter-
9 action with polar bears, however, is quite minimal
10 along the proposed routing area. In the eventuality
11 that there was a problem, the first step should be
12 there will be restrictions on firearms in camps, I might
13 add. Human life has to be protected. Facilities should
14 be fenced. The first step should be to involve game
15 management officials as well as the environmental
16 inspection crew to try and solve the problem. Tranquil-
17 izing and removal, I feel, is far preferable to the
18 shooting of the bear.

19 Q Yes, and one of the
20 recommendations that I have been informed has been made
21 by native peoples, to people on the rig sites, is that
22 they should keep a dog or more than one dog on the site
23 to alert them of the presence of bears, and have you
24 recommended that course of action to the applicant?

25 A No, we have not.

26 Q All right, do you think
27 that would be a useful device to act as a bear warning,
28 or not?

29 A I don't know how to
30 evaluate that. I would think that the dogs themselves

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 under certain circumstances would be an attraction to
3 the bear.

4 Q All right. Now, one of the
5 other species of animals that is attracted to human
6 habitation, as I understand, is foxes. Would you agree
7 with that?

8 A Yes.

9 Q And you face similar
10 problems with foxes, if they become accustomed
11 to the camps and that they are given handouts or do
12 manage to get into garbage that hasn't been incinerated,
13 that they may frequent a camp and become a nuisance,
14 and have to be destroyed.

15 A Well, they have been known
16 to frequent camps. They are not dangerous animals with
17 the exception that at times fox populations can transmit
18 rabies; but I have not considered this to be a problem
19 of very great importance on the routing, inasmuch as
20 at the time we're talking about, construction, Arctic
21 foxes are quite widely dispersed and tend to be disper-
22 sed northward of the pipeline and any facilities. Even
23 where our concern is focused around the denning areas,
24 and during the winter period they do range quite widely
25 feeding on carion, on polar bear kills and such like,
26 and I don't anticipate that it would be a serious
27 problem.

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McCart, Jakimchuk
Cross-Exam by Bayly

1 Q You would agree though
2 with the evaluation made by the Environment Protection
3 Board on page 79 of Chapter four of Volume IV of
4 their report that foxes soon get used to the presence
5 of man, feed readily on kitchen refuse and often become
6 a nuisance --

7 A Excuse me, where is
8 that again?

9 Q That is on page 79 of
10 the fourth volume.

11 A Yes, and what is the
12 statement that you are reading?

13 Q This is at B, feeding
14 at dumps.

15 A Oh, yes, okay.

16 Q Now, that won't be a
17 problem if you incinerate everything but the report
18 goes on to state that they have been known to chew on
19 electrical cords so that they may become the kind of
20 nuisance I've suggested if that statement is true,
21 would you agree with that statement?

22 A It is possible that
23 they would become a nuisance, yes, if they were
24 attracted.

25 Q All right, and have you
26 made any recommendations with regard to the presence
27 of dogs to discourage foxes at camps?

28 A No, we have not.

29 Q Now, my information is
30 that in Alaska they had a problem incinerating every-

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross- Exam by Bayly

1 thing that they had to incinerate every day and there
2 was a build up of garbage that had yet to be incinerated
3 and this was an attraction to certain -- to foxes in
4 certain areas and is that information that you have
5 had?

6 A I don't know what speci-
7 fic case you are referring to. What are you referring
8 to? The Alaska pipeline?

9 Q Yes, to the Alyeska
10 project.

11 A I have not been aware
12 of that.

13 Q Now, is the solution
14 to build bigger incinerators or is there a solution
15 that you would recommend to discourage the presence
16 of foxes even if this became a problem?

17 A Well, what we have
18 recommended is that there be very stringent controls
19 on garbage, both with respect to foxes and bears and
20 whatever logistics are required to ensure that there
21 is no garbage, we feel should be developed. We have
22 essentially left the logistics part of it in the
23 hands of the engineers, but you know, our criterion
24 is no garbage and I don't consider it an excuse that
25 they couldn't incinerate it all in one given day. I
26 don't think that that is an excuse.

27 Q All right. Now, I
28 suppose that bars the situation where the incinerator
29 is broken down, but you are saying that the incinerator
30 should be designed to take the capacity of the camp?

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 A Ye, and also we have
2 indicated that in problem areas, areas where there is a
3 possibility of some kind of an adverse interaction
4 be fenced off so that there is no contact between a
5 hazardous situation and wildlife species.

6 Q Yes. On this project
7 you may very well have native peoples from the local
8 communities who, if they find that foxes are attracted
9 for one reason or another, they may want to trap them,
10 and perhaps Mr. Hemstock would address himself to
11 this question. Have you formulated a policy with
12 regard to trapping around camp areas and especially
13 as it relates to people who would have the right to
14 trap certainly if they weren't employed by the
15 company?

16 WITNESS HEMSTOCK: No, we
17 have not formed any policy. We would think that it is
18 beyond our control to have anything to say about
19 trapping by people who have that right in the
20 area.

21 Q All right, but to go
22 a little farther into the question, because I am not
23 sure that I made it as clear as I wanted. What if
24 these people are also employees of the company, helping
25 to build the pipeline?

26 A That is something that
27 we have discussed and I am afraid that I cannot answer
28 the question. I think that it is a point of law. I
29 do know that industry so far has taken the point of
30 view that if you are working on a project and it is the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 policy that there is no trapping or hunting by employees,
2 that that applies to everybody, whether it is a native
3 person or not. Whether this could be enforced, I
4 am not sure.

5 Q Yes, and I gather you
6 would face this kind of problem, for example, if you
7 hired people from Aklavik and they chose to live at
8 home rather than at a camp which is located approximately
9 eight miles away?

10 A Yes, we would like to
11 have a policy of no fishing, no hunting, no trapping
12 of any employee while on the job.

13 Q All right, and when
14 you say "while on the job" I gather that means while
15 working and while housed at a company facility?

16 A That is correct.

17 Q Yes, and that, Mr.
18 Jakimchuk, I take it would take care of the concern
19 expressed at page 85 of the same report with regard
20 to hunting and poaching of grizzly bears which was a
21 concern of the E.P.B. Do you have that report before
22 you -- Under 7.2, and I will just read it for your
23 benefit, Mr. Commissioner:

24 "With the influx of people that the
25 construction and operation of the pipeline
26 would cause both directly and indirectly
27 considerably more hunting pressure is to
28 be expected. McElroy (1972) has
29 shown how a black bear population was re-
30 duced by hunting in an area that in former

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1 years was relatively undisturbed."

2 I take it you share that concern, Mr. Jakimchuk, and
3 feel that Mr. Hemstock's solution of no hunting by
4 employees on the job or housed in company facilities
5 would take care of that?

6 WITNESS JAKIMCHUK: Yes, we
7 have been concerned about that for a number of
8 years and recommended that very strict control be
9 developed against hunting, particularly for the large
10 carnivores.

11 Q Yes. Now, one of the
12 problems that I understand Alyeska had, and this came
13 out in the evidence of one of the witnesses,
14 Magistrate Sprecker, in Whithorse, was that although
15 there had originally been a rule that there should be
16 no guns in camps, that that rule had either been
17 ignored or altered and that in fact construction
18 workers did have weapons and access to them?

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1 A Well, I'm not really
2 familiar with what has transpired on the Alyeska Pipe-
3 line No. 1, so I don't think I can comment on that.
4 But I would also add that gun laws in the State of
5 Alaska are considerably different than they are in
6 Canada. For example, people can carry and own hand
7 guns which are concealable. That might have something
8 to do with it. Long arms are not as readily conceal-
9 able as hand guns.

10 MR. MARSHALL: Mr. Bayly,
11 perhaps you have a reference to that. It's a while
12 back, I realize, but I can't remember Magistrate
13 Sprecker giving evidence on that.

14 MR. BAYLY: I'll have to
15 locate that, Mr. Commissioner, but I will do that and
16 give it to my friend.

17 Q Mr. Hemstock, I take it
18 that it would be a legal problem similar to the one
19 that you've defined earlier, which would have to be
20 seen in conjunction with the company's rules.

21 WITNESS HEMSTOCK: Yes.

22 WITNESS JAKIMCHUK: Further
23 to that, Mr. Bayly, just one more comment, and that is
24 Alyeska construction has been going on during the summer
25 season. With winter construction, bears, with the
26 exception of polar bears, will be in dens, as well as
27 geographically removed by and large from the area of
28 the routing. So that's an important mitigation in it-
29 self, the fact that when large numbers of people who
30 would be associated with construction are around and

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1 controls may be somewhat difficult, the possibility of
2 inter-action are minimal.

3 Q I take it you have con-
4 sidered the problem, though, of people hunting on their
5 time off just as we discussed with Dr. McCart, the
6 problem of people fishing on their time off, if they
7 decide that they want to go out to Inuvik and hire a
8 plane back into the area say where caribou are, in the
9 late winter or early spring while construction is still
10 going on, the company will have little ability to con-
11 trol that sort of thing.

12 A Well, we've considered
13 these, and there are a whole number of possibilities
14 which we have considered over the years. During the
15 winter season it's unlikely, for example, that with the
16 routing of the applicant that there would be caribou
17 available to hunt in the vicinity of camps, but we have
18 also stated and said that we felt there should be restri-
19 ctions on use of compressor station airstrips that would
20 preclude them as staging points for hunting activities.

21 Q Have you had discussions
22 with the various game branches and authorities about
23 this, as you have realized it is a problem?

24 A I have not held discussions
25 of this nature, no.

26 Q And your restriction on
27 the use of airstrips solves that part of the problem,
28 but not the problem of light planes that could land on
29 a lake on skis.

30 A Light planes ski-equipped

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1 or float-equipped, yes, there are a wide range of
2 landing possibilities.

3 Q Yes. Dr. Banfield, if
4 we can turn to your environmental assessment overview,
5 and as I suggested earlier to you this morning, sir,
6 if they are questions that are more in the realm perhaps
7 of Mr. Hemstock or one of the other members of the panel,
8 feel free to direct the questions to them, or they should
9 feel free to speak up. As it is your evidence, I will
10 be starting with questions directed to you specifically.

11 Now what I'd like to know, Dr.
12 Banfield, is if you will allow me to synopsise your
13 thesis on environmental impact assessment, and I invite
14 you to tell me whether I've got it correctly or whether
15 I haven't, and I've summarized the thesis into five
16 points. I'll read those to you and perhaps you can tell
17 me whether I'm correct or not.

18 First of all you've said that
19 environmental impact assessment is either an art or
20 a science that is at present in its infancy. You would
21 agree with that?

22 WITNESS BANFIELD: Yes.

23 Q And secondly, that only
24 a couple of methods have been used in the past, one of
25 which is the method that you have used.

26 A Well, there have been a
27 number of methods proposed, only two methods have really
28 been practiced to any extent. Actually if you include
29 the participation of the E.P.B., both these methods have
30 been presented.

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2 Q Yes, as I understand then
3 there is your method of getting the various disciplines
4 together to discuss their joint problems, and the matrix
5 method used by the Environmental Protection Board.

6 A Oh no, sir. I hadn't
7 really included my own hypothesis, as you've explained
8 it. I have thought in terms of the environmental mat-
9 rix as being one method and the other the overlays that
10 are made on maps, indicating different concerns on
11 transparent overlays that are then superimposed on a
12 base map as being the second method.

13 Q All right, and you've
14 stated as well as a third point that no single method
15 has as yet been generally accepted, that, as we are in
16 this pioneering stage, all these methods are being
17 tried and tested still.

18 A That is correct.

19 Q You've stated further that
20 up until this point, and in particular in this country,
21 the guidelines and assistance of government has been
22 too general and vague to be relied on as a method by
23 itself.

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1 A I don't think I said
2 too, too general and vague. I think I said it was
3 general. I wasn't implying that it was government's
4 requirement, or it was part of their mission that they
5 should also develop methodologies. I would expect
6 methodologies would appear spontaneously by individual
7 researchers.

8 Q Right. And actually
9 your statement is that on page three, "government
10 guidelines have been very general and only a few
11 assessment methods have been tentatively recommended."
12 In other words, it is fair to say that government
13 hasn't given a great deal of assistance to the actual
14 process by their guidelines?

15 A That is correct.

16 Q And the fifth point
17 is that the place where government involvement in
18 environmental impact assessment began, can be traced
19 back to the National Environmental Policy Act of
20 1969, in the United States?

21 A Yes, sir.

22 Q Now, this Act, as I
23 understand, and Mr. Commissioner, I had requested that
24 the Applicant locate a copy of this Act and they were
25 unable to do so. I have a discussion on the Act that
26 I have loaned to Dr. Banfield, so he and I are both
27 acquainted to this discussion of it and I am afraid
28 that that is the best we can do at this point. Perhaps
29 we could at some point get a copy of that, sir, for
30 the Commission, so that it could be referred back to.

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1 THE COMMISSIONER: I think
2 that we have a copy. I am familiar with the Act
3 anyway.

4 MR. BAYLY: Yes.

5 THE COMMISSIONER: Carry on.

6 MR. BAYLY: Now, the
7 report that I will be discussing with you, Dr. Banfield,
8 is the proceedings of the workshop on the philosophy
9 of environmental impact assessments in Canada and
10 that was a workshop organized by the Environment
11 Protection Board in October 1973, and you are familiar
12 with that volume, are you, sir?

13 A Yes, sir.

14 Q And in that volume there
15 is a discussion of the National Environmental Policy
16 Act by Mr. William T. Lake, and it is found on page
17 11 of that volume?

18 A Yes, sir.

19 Q And he says in that
20 volume and I invite you either to agree or disagree
21 with his analysis of the legislation as it relates
22 to your statement that it is the starting point, three
23 things: first, that it declares a national policy
24 to protect and enhance the environment, would you
25 agree with that?

26 A Yes, sir.

27 Q And second, that it creates
28 a Council on Environmental Quality in the United
29 States.

30 A Yes, sir.

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1 Q And third, and perhaps
2 this is the one that as far as our discussion, may
3 be the most important, is that by Section 102 it pro-
4 vides for environmental impact assessments and that
5 they are a requirement of projects.

6 A Yes, sir.

7 Q And I gather that the
8 inclusion of that third matter arose after the
9 Act was first put forward and as a result of the blow
10 out of an oil well off the coast of California. That
11 was Mr. Lake's interpretation. I ask you whether you
12 agree with that as a matter of history or perhaps as
13 something that is beyond your knowledge?

14 A Well, I cannot verify
15 it on personal knowledge. I know that any act of
16 Congress that finally passes is a compromise between
17 a number of individual bills that are presented by
18 various members and I also know that the blow out,
19 Santa Barbara occurred on May 23rd, 1968, I believe,
20 so that is prior to the enactment of the Act. But
21 the Section 102, of course, is in the Act and an
22 integral part of the Act as passed.

23 Q Yes. Now, one of the
24 things that Mr. Lake says in his article, and I invite
25 you to comment on this, on page 16, within a year after
26 NEPA, as they have shortened the name of the Act to
27 enactment, the notion of an agency devoted solely to
28 environmental concerns / ^{bore} its first offspring in the
29 President's creation of the Environment Protection
30 Agency in which all of the Federal programs for

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1 regulating pollution are combined for the first time.

2 A Yes, that was by
3 executive order in I believe, June, 1970.

4 Q Yes. So, it caused
5 the creation of an agency which had some regulating
6 power?

7 A Yes, there was a little
8 shuffling around. I think the Act envisaged that the
9 Council of Environmental Quality would be the
10 major agency, but this turned out not to be proper.
11 In fact, some of the duties assigned to the Council
12 of Environmental Quality were improper and in a
13 reorganization bill of the whole U.S. Civil Service,
14 the Environmental Protections -- what is the word--
15 I am lost in anagrams --

16 Q E.P.A.

17 A E.P.A., was established.

18 Q And parallel to the
19 creation of an agency with regulatory power over
20 pollution legislation, the National Environmental
21 Policy Act also caused a number of court cases to
22 be brought under its Section 102, is that your
23 understanding of it as well?

24 A A large number of court
25 cases.

26 Q Yes.

27 Now, I realize you have
28 said that this is a starting point, but with your
29 knowledge of this piece of legislation and the kinds
30 of things that it has led to, is it the sort of

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1 legislation you would like to see in this country
2 for the purpose of making sure that projects were
3 evaluated in a certain way, or that they were evaluated
4 even generally from an environmental impact assessment
5 point of view?

6 A Subject to the differing
7 political baselines of the two countries, I would
8 indeed like to see an act similar to that, and I
9 may -- you probably are aware that my dreams have
10 already come true, at least in the Province of Alberta,
11 the Province of Ontario, where the Environmental
12 Assessment Act of Ontario has been passed this year.
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1 Q And I gather that we
2 can -- we could, if we had an Act of a similar nature
3 to the National Environmental Policy Act, avoid the
4 kind of decision that you outlined as a panel yester-
5 day on the Dempster Highway, one in which there was no
6 public assessment, in any event, and no way of the
7 public evaluating the impact of a project such as the
8 Dempster Highway.

9 A That is one of the major
10 points. NEPA demands a public participation, a public
11 hearing, much as this Inquiry is structured, and that
12 is demanded under both Acts I've mentioned.

13 Q Yes. Now --

14 THE COMMISSIONER: Is that a
15 sound comparison, Dr. Banfield? I was looking at their
16 procedures before we got this thing under way to see
17 in what respects they could assist us. In fact, we met
18 with some of the people that administer NEPA in Washing-
19 ton, D.C. The hearings they hold are held by offi-
20 cials of the Department of the Interior, I think, or
21 officials of whatever department the project comes
22 under. I think they're chaired by what they call an
23 administrative law judge, a creature peculiar to the
24 U.S. system; but their hearings, for instance, on the
25 -- on this project, this very one that we're discussing
26 lasted something like six days, which while you might
27 say these hearings are taking longer than they need to,
28 I don't think anyone would have suggested you could
29 have covered all the ground, even if you were limiting
30 yourself to the environment, as we are not doing, in

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1 six days. At any rate, it's interesting.

2 A Your statements are
3 absolutely correct, sir, you're obviously well-informed
4 on the problem. I was replying in only very general
5 terms to point out that hearings were required, public
6 hearings were required. The actual structure and
7 guidelines are different from this Inquiry. Your
8 terms of reference; the requirement is for the depart-
9 ment, the U.S. Department of the Interior or the
10 magistrate, it's usually the U.S. Department of the
11 Interior, to conduct a hearing, and so it is in fact
12 quite different than this hearing. But I was trying to
13 speak to a general point.

14 THE COMMISSIONER: Fine. Well,
15 carry on. I'm not sure this is helpful.

16 MR. BAYLY: What you're
17 really saying then is that you'd like to see the
18 requirement of hearings into the environmental impact
19 of projects, whether or not they are modelled on
20 hearings that have been conducted under the National
21 Environmental Policy Act.

22 A Yes sir. There's two
23 obvious possibilities. (1) is a Commission hearing
24 such as this one in which there may be one Commissioner.
25 There was a similar hearing to this one, very similar,
26 in Ontario having to do with Ontario Hydro transmission
27 lines in which Dr. Omand Solandt was the single
28 Commissioner. The other type of hearing is where there
29 is an established Board, Environmental Assessment Board
30 established at some arm's length -- I'm using now a

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1 general legal concept -- some arm's length Board estab-
2 lished which has the authority to undertake the hearings.

3 Q Now, one of the other
4 things that you agreed had resulted from the enactment
5 of this legislation was a great deal of litigation and
6 as I understand Mr. Lakes' paper, he says that the
7 litigation was based on three grounds, and I would
8 invite you to comment on whether you would feel that
9 people should be able to come forward, expressing their
10 displeasure through the Courts on any or all of these
11 three grounds.

12 MR. MARSHALL: I will instruct
13 the witness not to answer that question, sir. I don't
14 think it really has any relevance.

15 THE COMMISSIONER: Where does
16 that get us at this Inquiry, Mr. Bayly?

17 MR. BAYLY: Well, Mr. Commis-
18 sioner, we have as a starting point, according to
19 Dr. Banfield, the National Environmental Policy Act,
20 he's familiar with what has happened under it. We have
21 the advantage of his saying that he has become, if you
22 will, a student of the art or science of environmental
23 impact assessment. If in his opinion this model has
24 gone off the rails or is on the right track, I think
25 that would be of benefit to this Inquiry. It is an
26 opinion but we haven't had many people who have said
27 that they have been studying the process. You, sir,
28 will be making recommendations, no doubt, with regard
29 to regulating projects of this nature. They may involve
30 recommendations that there be legislation enacted. I

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1 don't know that, sir, but I would suggest that for that
2 reason if Dr. Banfield has some opinions on whether
3 the whole process got bogged down in the States, or whether
4 it works very well, from his point of view and I don't
5 mean from a legalistic point of view.

6 THE COMMISSIONER: What was this
7 question about the Courts again?

8 MR. BAYLY: I was asking him
9 to agree with the paper that was written by Mr. Lakes
10 that there have been three types of actions brought
11 under NEPA and inviting him to comment on whether these
12 appear to have bogged down the process, or appear to be
13 valuable for the process of reviewing environmental
14 impact.

15 THE COMMISSIONER: Well, I
16 don't think that I have any mandate to tell the
17 government how to conduct environmental impact assess-
18 ments. I'm supposed to report on the impact of this
19 project and all its ramifications, and to make recommen-
20 dations about it. I think the most important lesson
21 that will come out of this Inquiry regarding the
22 way we should conduct these impact assessments will be
23 the conduct of the Inquiry itself, and views I'm sure
24 will differ, already views differ. I wouldn't be
25 surprised if there are many people who say, "This is
26 the wrong way to go about it."

27 There may be those limited in
28 number, faithful disciples, who think it's the right
29 way.

30 MR. BAYLY: I'm content to

1 leave that question, sir.

Q Now, Dr. Banfield, if we can move then from your starting point, which is this particular Act, to your own participation and the participation of the environmentalists in assisting the applicant to prepare an environmental impact assessment, and if we can look at page 3 of your evidence on this subject, in the second paragraph -- third paragraph on the page, you stated that in terms of the environmental impact assessment process it is significant that in this project environmental planning was conducted from the beginning simultaneously with engineering planning."

A Now, my understanding of the evidence to date, sir, is that engineering planning began in 1967 and that environmental input did not take place until two years after that in the initial stages. Would you agree with that?

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1 MR. MARSHALL: I don't know
2 whether I agree with that -- do you have a reference?

3 - MR. BAYLY: Certainly.
4 Volume 15, page 1648.

5 MR. MARSHALL: Is this a
6 reference to initial plants looking at Pointed Mountain
7 area?

8 Mr. Bayly, my recollection
9 was that Mr. Williams and Mr. Dau testified that
10 their first involvement in a Northern pipeline
11 project began when they were asked to start looking
12 at ways of getting gas from an area in the Pointed
13 Mountain region and this may have dated back to
14 those years. It was somewhat later that the studies
15 were expanded to look at the possibility of bringing
16 gas from the North Slope in Alaska.

17 MR. BAYLY: Mr. Commissioner,
18 the record at 1648, the witness Dau says at the top
19 of the page starting at line 1:

20 "Williams Brothers (Canada) Ltd. were
21 retained in 1967 by some of the present
22 member companies in the Arctic Gas Study
23 Group to investigate the feasibility of
24 a natural gas pipeline for the potential
25 producing areas of northwestern Canada
26 to the market areas in the Great Lakes
27 area, Canada, and the United States, and
28 at that time, the prime potential producing
29 area was considered to be the southeastern
30 portion of the Yukon Territory and the

1 southwestern portion of the Northwest
2 Territories in the Fort Liard area."

3 So, Mr. Marshall is correct in that they were looking
4 at the Pointed Mountain area at that time. Later in
5 the page, line 21:

6 "In 1969 discussions were held with
7 producing companies with potential
8 production in northwest Canada and
9 Alaska, with the result that the original
10 assignment was expanded to include the
11 potential producing areas of the Mac-
12 kenzie Delta and Prudhoe Bay and
13 Alaska."

14 Now --

15 MR. MARSHALL: Thank you,
16 Mr. Bayly.

17 MR. BAYLY: And after that
18 at line 28:

19 "This assignment resulted in numerous
20 investigations and studies of alternate
21 routes and systems configurations and
22 environmental and technical research."

23 And I gather that the group was formed to look at these
24 areas in 1969 and at that time a decision was made
25 to have environmental impact assessment, would you
26 agree with that, Dr. Banfield?

27 A The exact meanings of
28 words can be argued, from a practical point of view.
29 My response would be that the Sans Sault test site
30 was constructed in the winter of 1970 -71, and at that

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1 point in time actually in the field, there were -- there
2 was environmental experimentation initiated having
3 to do largely with the physical environment and
4 revegetation. - Perhaps on a lighter note I would say
5 that when I first joined the group in, about April
6 Fool's Day, 1971, I would say I was very surprised to
7 learn how little progress in the engineering planning
8 had been made prior to that date and so I really
9 feel that my statement is fair. I think that all of
10 the consultants sitting here would support me in
11 saying that we asked a lot of questions to which the
12 engineers were not able to supply answers as to what
13 we would consider engineering points.

14 Q Yes. And it was the
15 assignment of Northern Engineering Service, that
16 you became part of, and it included providing engineering
17 and environmental services to the potential producers
18 and carrier --

19 A Yes, sir.

20 Q The reference for that,
21 Mr. Marshall, is at the same volume, page 1650.

22 Now, the route selection
23 appears to have been done by the engineers and commented
24 on afterwards -- after the initial selection by
25 the various environmentalists hired by N.E.S. , would
26 you agree with that, Dr. Banfield?

27 A Not completely. The
28 engineers having logistic support were able to have
29 routes drawn on maps that might verify your statement.
30 On the other hand, during my first interview, I proposed

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1 a route that was offshore in the Beaufort Sea that
2 would be constructed during the winter from the
3 ice and laid on the bottom of the sea and then come
4 from Prudhoe Bay, would go off a number of miles and
5 then come back in to the outer islands of the Mackenzie
6 Delta, and the sophistication of my project is in
7 much less -- the sophistication of my presentation
8 was much less than the engineering routes, but I think
9 it is arguable to say that none of us had -- none
10 of us presented environmental routes. I would
11 also say at that time environmentalists also suggested
12 the possibility of the Alaska Highway as a general
13 sort of corridor.

14 Q Yes, so in the sense
15 though of the prime route and the Interior alternate
16 route, these were produced essentially, as I understand
17 the evidence, and here we are referring to volume 17,
18 page 1955, to a route selection, and I am sure with
19 consultation with the various environmentalists who
20 were on staff at that time by Messrs. Williams,
21 Watson, and Mollard, and the reference there, and I will
22 read it to you -- is at the bottom of page 1955
23 of the transcript, starting at line 27:

24 "When I am speaking of the locator, I am
25 speaking of people like Dave Watson and
26 myself who sit down with stereo pairs
27 along with Jack Mollard's terrain typing
28 and select the route taking into account
29 as many factors as we can think of."

30 And I gather some of those factors that they would have

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1 thought of would have been things that you suggested
2 to them as general ^{considerations} that they should make and
3 general things that they should watch out for, from the
4 point of view of protecting the environment.

5 A In view of the subse-
6 quent variations in this route, I would feel more
7 comfortable if you said they -- or they had stated that
8 they had picked corridors, and one of the obvious
9 constraints, on picking, say, the interior route or
10 corridor would be the fact that the State of Alaska
11 had already set aside a transportation corridor and
12 so they picked that area. They picked that route.

13 Q Yes, I won't be
14 selective, if I can possibly avoid it, Dr. Banfield,
15 and I will be taking you through a number of pieces
16 of evidence and inviting you to tell me whether
17 you feel that these were correct or your understanding
18 of the way in which the route was selected and the
19 environmental input into that process.

20 WITNESS JAKIMCHUK: Mr.
21 Bayly, I could make a comment here. It elucidates on
22 that a little bit, I think. It is something that
23 impressed me and stuck in my mind in any event. The
24 first time of my involvement when I met Mr. Dau, I
25 think it was in February of 1971, we were having
26 discussions about our possible involvement with this
27 project and at that time there was no environmental
28 program established and we walked into the board room
29 and there up on the wall I saw a series of maps which
30 my company had produced as a project of summary and

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1 collation for the Canadian Wildlife Service. called
2 the Arctic Ecology map series and I was quite surprised
3 to find these maps up on the wall with various routings
4 drawn through, in and around and Mr. Dau commenting
5 on the fact that these were a hot item because it was
6 the only thing that they had to go on at that
7 point. It kind of impressed me because it was tangible
8 that at that time they were consciously thinking about
9 environmental concerns in routing.

10 Q So they had used your
11 information despite the fact that they hadn't the
12 benefit of having you on staff as yet?

13 A Pardon me, I am
14 sorry?

15 Q So that they had used your
16 work without having had the benefit of you on staff at that
17 time?

18 A All I am saying is that
19 they were thinking in the routing process about
20 environmental considerations at that time.
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1 Q Now, the gentleman I
2 referred to, Dr. Mollard, Mr. Williams and Mr. Watson,
3 have at various times said that on their own that they
4 couldn't pick a route that was environmentally sound.
5 They relied on your group to give them that assistance,
6 and would you agree with that?

7 WITNESS BANFIELD: Yes sir.

8 Q And Mr. Marshall, so
9 that you can check these references, if you're worried
10 about my misleading you, at Volume 17, page 1980 Dr.
11 Mollard says that he admits his ignorance of ecologically
12 sensitive areas in choosing borrow pit sites; at Volume
13 18 at page 2035 Mr. Williams stated that he was not of
14 his own knowledge aware of whether Big Eddy was a
15 spot that was important for a local fishery, and we
16 didn't have a statement from Mr. Watson about this.
17 Mr. Watson did, though, Dr. Banfield, state the
18 method of beginning to select a route, and I invite
19 you to comment on this at page 2065 and 66 of Volume
20 18, beginning at line 29 Mr. Watson stated:

21 "Well, certainly if there were no other
22 factors involved, a straight line would be
23 the most economical."

24 Question by Mr. Scott:

25 "Just see if I understand. The first thing
26 you look for, if possible, if there are no
27 other factors, is a straight line.

28 A Yes.

29 Q Then you look to determine whether the
30 straight line creates engineering or design

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1 " problems that can be foretold.

2 A Yes.

3 Q And that may lead to a deviation from the
4 straight line

5 A Yes.

6 Q Then you look perhaps to see whether the
7 straight line will in some way damage the
8 security of supply.

9 A Yes, that's a consideration."

10 And then skipping a bit that
11 is on another topic to line 23:

12 "Q And that would be the third consideration, and
13 then of course in this case there would be all
14 the inputs you have described or that Mr. Dau
15 has described in some detail from your environ-
16 mental staff and the socio-economic advice, if
17 any, that was obtained by Arctic Gas.

18 A M-hm. "

19 And you would agree that the process took place
20 in that fashion?

21 A Well, I'm listening to
22 the record. I'm not sure that a priority was established.
23 If that's what you're asking me, whether --

24 Q Well, I'm wondering if
25 that is a fair appraisal of what Mr. Watson said, whether
26 this is a sequential process that's been described or
27 whether these are just elements that went in, in a
28 different order, and you --

29 MR. SCOTT: Mr. Commissioner,
30 I reluctantly interrupt this line, but Mr. Watson in the

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1 routing panel gave evidence that he and his team were
2 responsible for drawing the line, and he described the
3 inputs they had and the way they used the inputs when
4 the line was drawn. Now that was their job and they
5 came and told us what they did. Surely it doesn't assist
6 to hear from Dr. Banfield that he thinks he had more
7 or less input than Mr. Watson said he did. It was Mr.
8 Watson who drew the line. He says what he looked at and
9 who he listened to, and that's surely the end of the
10 matter. If Dr. Banfield or anybody else thinks that
11 he had more influence, that's really -- or less influence,
12 it's irrelevant. Mr. Watson was the one who had the
13 pencil and surely this kind of cross-examination just
14 is of no assistance. It may be that Mr. Watson relied
15 heavily on Dr. Banfield. It may be that he heard a
16 lot of things that Dr. Banfield said and went, "Yes,
17 yes, yes, go away, I'll do it." But this kind of cross-
18 examination surely is not going to advance us to
19 measure the environmental impact of the pipeline.

20 MR. BAYLY: Mr. Commissioner,
21 the line of questioning, I think, is becoming obvious.
22 It may not be obvious to Mr. Scott at this time but I
23 want to know when the environmentalists were asked to
24 comment, before the line was drawn or afterwards, and
25 --

26 MR. MARSHALL: Why don't you
27 ask him? You know, I think I've got to support Mr.
28 Scott.

29 MR. BAYLY: Of course, he's on
30 your side.

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1 MR. SCOTT: I'm getting nervous
2 about whether I'm right now.

3 THE COMMISSIONER: Well, let's
4 ask --

5 MR. BAYLY: I can ask it in
6 that way, sir, and there's no need to refer to this
7 except that whenever I ask a question of this nature
8 about something that appears in the transcript I get
9 asked by Mr. Marshall for a reference, and he has his
10 reference now.

11 THE COMMISSIONER: Let's ask
12 your question.

13 MR. BAYLY: Q Dr. Banfield,
14 was the line given to the environmentalists to comment
15 on after Mr. Watson had drawn it, albeit that he may
16 have had the kind of information say that Dr. Jakimchuk
17 -- Mr. Jakimchuk's maps gave him prior to taking out
18 his pencil?

19 MR. SCOTT: Mr. Commissioner,
20 I'm reluctant to intervene again. It's of some import-
21 ance (a) because it may not be relevant, and (b) because
22 Mr. Bayly may be trying to undercut the evidence that
23 was previously obtained. I don't think he can do it
24 in this fashion. Mr. Watson drew the line and he says,
25 he and his team drew it, and he says he drew it. He
26 described what inputs he relied upon and then he says
27 what he did with it, that he gave the line to the
28 environmen talists. Now he's the man who ran that part
29 of the show, he and Mr. Williams they are a team
30 Surely for Dr. Banfield or anybody else to say that

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1 something else happened cannot assist.

2 MR. BAYLY: Unless something
3 else did happen. Mr. Commissioner, I'm not saying that
4 Mr. Watson is wrong and that Dr. Banfield may give an
5 answer that is completely different, but I submit that
6 it is relevant when the environmentalists came into the
7 matter because in selecting a route, that process may
8 have taken place before they came into it. There's a
9 lot of importance in that, in whether they could there-
10 fore propose, as Dr. Banfield says he did, the offshore
11 route, or the east of the Franklins route, or whatever.
12 Now I'm not trying to upset what Mr. Scott has already
13 built, if that's his concern.

14 MR. SCOTT: Well, I take it
15 that my friend's questions are designed to show and
16 will show that there was environmental input from the
17 very beginning, and that it was crucial and significant
18 in the selection of the line; and if that's his pro-
19 position, I of course can't object to it and I withdraw
20 the objection I made.

21 THE COMMISSIONER: Well, where
22 is all this getting us one way or the other? This
23 comes up again and again, and each time I ask where
24 it's getting us. This is going into the internal decision-
25 making of Arctic Gas. Surely our job now is to look
26 at this pipeline they want to build and say whether
27 -- what the extent of its impact will be in the light
28 of what may come after it, an oil pipeline and so on
29 and so forth, and to report on that. Why does it help
30 us to know whether from the beginning, Dau and McCart

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1 and Dau and Banfield and so on and so forth were
2 working together constantly? This may have been the
3 greatest team of engineers and environmentalists working
4 together that has ever been assembled anywhere, and
5 maybe they got along famously from the beginning. What
6 does that matter? We have to look at the finished product
7 and say what the impact is going to be, and make certain
8 recommendations. Suppose it consisted solely of
9 engineers who threw Banfield and Gunn out whenever they
10 saw them coming, "Not these pests again." And yet
11 if it turned out that the line was one whose impact
12 would, as a matter of prediction, because that's all
13 we're doing here is predicting, we're not finding facts,
14 would be about as good as you could get, then what
15 does it matter? I'm drawing extremes here but where
16 does this get me?

17 MR. BAYLY: Well, Mr. Commis-
18 sioner, I'm hoping that this will assist you and perhaps
19 it doesn't, but I am trying to determine whether the
20 approach that Dr. Banfield is saying was used to deter-
21 mine the route that was environmentally the best route,
22 was determined in a way that could find that out, because
23 you are going to receive evidence from other people
24 that may say that that's all wrong, and what I want to
25 do is to assist you to evaluate that evidence. If all
26 we have is a group on one side that says, "Our route
27 is better than yours," and vice versa, where is that
28 going to get us? I submit that it is going to --
29 may I finish, please, Mr. Marshall?

30 MR. MARSHALL: I'm sorry.

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1 I thought you had reached a pause.

2 MR. BAYLY: I had, but I hadn't
3 finished. I submit that it is going -- I'm hoping
4 that this line of cross-examination will make it easier
5 for you to evaluate the various disagreements so that
6 when you make your recommendations, sir, to the
7 government, you will be in a position because of the way
8 in which decisions were made, or the way in which a
9 route was selected, to determine whether you must
10 say that one assessment of the route had certain advan-
11 tages over others.

12 Now, it is certainly open to
13 Arctic Gas not to call evidence on the way in which
14 environmental impact assessment is done, but they have
15 chosen to do so, sir, and --

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1 THE COMMISSIONER: Oh, I
2 understand that Dr. Banfield provided us with this
3 discussion paper really, and we know the method he
4 followed, or Arctic Gas purported to follow. Whether
5 they were conscious from the beginning that they were
6 following any particular method is perhaps doubtful,
7 but why does this business of "Well, who told Watson
8 this and where did he draw the line?" Isn't that
9 getting into initia that is likely just to bog us down?

10 MR. BAYLY: Well, it's certainly
11 done that, Mr. Commissioner, but --

12 THE COMMISSIONER: Pardon me?

13 MR. BAYLY: It certainly has
14 done that. What my concern is, sir, is this, that
15 we have the Environment Protection Board who have
16 as a Board said that they prefer one route over the
17 other and it's not the same one that Arctic Gas did.

18 THE COMMISSIONER: You mean
19 one method.

20 MR. BAYLY: Not only one
21 method, sir, but as far as the coastal and interior
22 route are concerned, with the exception of Dr. Wilimov-
23 sky, we have the reverse preferal, and why does that
24 happen when we have respected scientists --

25 THE COMMISSIONER: Excuse me.
26 Dr. Wilimovsky agrees with Dr. McCart.

27 MR. BAYLY: Yes.

28 THE COMMISSIONER: He said it's
29 better to go along the coast.

30 MR. BAYLY: Yes.

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1
2 As I understood the Environment Protection Board evi-
3 dence, the rest of the panel said that they would
4 prefer the interior to be used if one of those two
5 was to be used.

6 WITNESS JAKIMCHUK: That was
7 never clear on the mammal testimony that I gave.

8 THE COMMISSIONER: It wasn't
9 all that clear to me. However, that's another issue.
10 Let's leave that. They'll be back in January.

11 WITNESS BANFIELD: Mr. Commis-
12 sioner, I know it's improper to interrupt, but may I
13 say two or three sentences?

14 THE COMMISSIONER: Certainly.

15 WITNESS BANFIELD: Mr. Watson

16 --

17 THE COMMISSIONER: I need all
18 the help I can get.

19 A Mr. Watson didn't draw
20 "the" line; Mr. Watson drew several lines. Whether
21 they had any relation to "the" line now is a different
22 matter.

23 MR. SCOTT: I think, Mr.
24 Commissioner, to get into this, Dr. Banfield is quite
25 wrong about that. Mr. Watson gave his evidence and his
26 evidence is that he drew a line and he submitted it
27 to the environmentalists for their meeting in May or
28 April, or May of 1973 and that is surely the danger of
29 this evidence. It may be relevant to determine that
30 Mr. Watson is mistaken.

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A Which line did he draw?

MR. SCOTT: One has to refer to the evidence to be precise about it, but Mr. Watson in some detail described the process, and if it should be considered relevant to establish that Mr. Watson is mistaken, I can't see any objection to Mr. Bayly's line of questioning. But I again raise the question of where will it lead us? Now, Mr. Bayly says that it may lead us to determine whether one of the two alternate routes is to be preferred for environmental or social reasons than the other; and I would respectfully say that it's conceivable that it may do that and perhaps the question should be permitted for that reason. I note particularly that some members of the panel, Mr. Jakimchuk, for example, in his prepared evidence, has made that point. He's come out in favor of one route rather than the other, and has taken several pages to say why the other is no good, or not as good. Perhaps if that is an issue Mr. Bayly should be allowed to proceed.

MR. BAYLY: Well, perhaps I can clear it up, Mr. Commissioner, with some evidence that Mr. Marshall gave in the transcript that showed how the method took place and this may resolve the issue. It's at page 2078 of the transcript, Mr. Marshall says:

"Perhaps I can be of some assistance, Mr. Scott. The various consultants, take for example, the environmental consultants, working in different areas were retained to do work at various times,

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1
2 and obviously their first assignment was to
3 concentrate on the gathering of baseline
4 data. They were provided with information
5 as to the route location as it then existed,
6 and were continually kept up to date as
7 revisions were being made in the routing.
8 So they would have received copies of routing
9 changes made from time to time, they first
10 started through the evolution of the route,
11 if you'd like to call it."

12 Would you agree, Dr. Banfield, that that was the
13 process, that you were kept up to date from time
14 to time of route revisions?

15 A Yes sir.

16 Q But that the revisions
17 may have been made, the actual drawing of them, by
18 someone other than the environmentalists, based at
19 least in part on recommendations that you had made?

20 A Yes.

21 Q And all through the
22 evidence given by Mr. Dau, in particular, we have refer-
23 ence to decisions having to be made, weighing environ-
24 mental costs against dollar costs, and I gather that
25 was something that you had to resolve along with
26 people like Mr. Dau as the route selection process
27 went on. Is that correct?

28 A No sir. I don't think
29 as an environmentalist we gave equal priority to
30 dollar costs, as Mr. Dau would have done. We didn't

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1 feel that was our responsibility.

2 Q All right, well then in
3 this process of environmental assessment, were you
4 told from time to time environmentally, "That's a
5 very good idea, Dr. Banfield, but it just costs too
6 much."

7 A Yes.

8 Q You have referred to the
9 matrix system employed by the Environment Protection
10 Board, and you've referred to that on page 4 of your
11 evidence. You have said that while it is a good method
12 as far as it goes, that what it really does is only
13 give you a two-plane picture of inter-actions between
14 human activities and other things going on in the
15 environment. Would you agree with that?

16 A Yes, I can accept that
17 explanation of two-plane, I understand.

18 Q Now, I take it it is
19 possible to create a matrix with more than two
20 dimensions even though you can't look at it on a piece
21 of paper.

22 A Yes, it's possible with
23 a computer.

24 Q And so that, would it be
25 fair to say that your criticism of the matrix is the
26 criticism of the matrix on a piece of paper, more than
27 a multi-dimensional matrix?

28 A My criticism was of the
29 Leopold method which was a matrix on a two-dimensional
30 piece of paper.

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1
2 Q Yes. Now, in his
3 discussion on the matrix system Mr. Templeton in the
4 transcript at Volume 46, page 6050 says as follows:

5 "A matrix is only one of the tools used to
6 make an informed subjective judgment. We believe,
7 however, that it is a valuable tool. When you
8 start to fill in the matrices, you start to
9 question yourself on the other disciplines as
10 to what you mean by impact, and what assumptions
11 are being made as to the activities that cause
12 the impact, and this is the first time that
13 you get into the inter-disciplinary process.
14 Up to now the work has been of a multi-disciplin-
15 ary nature with each discipline carrying on its
16 own work in its own way. When the disciplines
17 start to challenge each others' assumptions and
18 to decide collectively what is significant and
19 what is not, you are starting inter-disciplinary
20 process."

21 Now, what I'm curious about is, if you felt that you
22 had, first of all with regard to this passage, it seems
23 to say -- and tell me if this is your interpretation
24 of it as well -- it seems to say that without confront-
25 ing each other with your ideas you don't have an inter-
26 disciplinary, you have a multi-disciplinary approach.
27 That is each man works on his own specialty and submits
28 his work to Mr. Hemstock or to the applicant by some
29 other method. Would you agree that that comment is
30 accurate, the one that Mr. Templeton makes?

A You've gone into a very

Q All right. Well, one of

WITNESS McCART: Could I comment

Q Yes. Would you be discussing with him before he makes his recommendations?

Q Well, I understood that

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1
2 he either had or was in the process of making recommen-
3 dations of certain kinds of lakes which should be avoid-
4 ed. Am I right in that, Dr. Gunn?

5 A He has, yes.
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1 WITNESS GUNN: I would like
2 to define that a little more clearly. Studies we
3 have done have given us indications of what types of
4 lakes could be used in preference to other types of
5 lakes, but we have made no recommendations that lake
6 seven should be used or lake nine should be used, or
7 anything like that, because we haven't reached that
8 stage, and when we do reach that stage, that is
9 when the interdisciplinary studies would come together
10 and give you a combined answer on the thing.

11 Q All right, but would you
12 agree that at this time that these studies are
13 multi-disciplinary and that you are identifying
14 your particular concerns and that Dr. McCart is
15 identifying his and that you will become interdisciplin-
16 ary at the point when you get together to try and
17 sort out which lake characteristics in total should
18 be put into the model of lakes that should be used and
19 avoided?

20 A Well, I think that I have
21 already stated the procedure as I see it and it is
22 still incomplete.

23 Q Yes, and so the interdis-
24 ciplinary part is still yet to come.

25 WITNESS MCCART: Well, there
26 is another factor too and that is certainly some of
27 the lakes -- we are in the process of getting
28 physical data on volumes of lakes, ice cover, development
29 of ice thickness and so forth so that we have some
30 idea what volume remains at a certain time of year.

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1 It has to go to the engineers for certain of these
2 or they are simply going to find them unfeasible as
3 water sources from an engineering point of view
4 for one reason or another so that we have looked at
5 something in excess of 50 lakes along the North
6 Slope and Dr. Gunn has looked at something like
7 60. We have to take this information into the engineers.
8 They say, okay, we would like to take it from this
9 lake and this lake and this lake and this lake, are
10 there any environmental constraints, and at that point
11 we can say, yes, we would prefer another lake because
12 some fish problem, Dr. Gunn then can comment on it
13 from a bird point of view.

14 Q Well, Dr. Banfield, why
15 was the matrix system not used in conjunction with
16 your system by the environmentalists as a tool, as
17 Mr. Templeton has described it?

18 WITNESS BANFIELD: Well
19 that part I disagree with Mr. Templeton, as I have
20 said. I do not think that it is particularly useful.
21 It tends to be a crutch rather than a tool, and a
22 lot of people say they have used it and they think
23 they have in fact undertaken a legitimate environmental
24 impact assessment. The Mackenzie Valley Pipeline
25 Assessment Group say they undertook it and they
26 identified 19,000 some odd interactions and I think
27 that just proves that it isn't too useful. You come
28 up with that statement, but it is really a useless
29 sort of statement to say that you have identified that
30 many interactions and you mustn't use it as a crutch,

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1 to say having identified 19,765 interactions. I am
2 not going to say that that is the exact figure. We
3 have then undertaken a jolly good environmental impact
4 assessment. This is the point that I am making.
5 We also identified concerns and interactions but we
6 tended to do it in a list form and it is now generally
7 felt in the discipline or field of environmental
8 impact assessment that this matrix is only useful
9 to identify concerns. It may be that unless you
10 structure your thought processes in a two dimensional
11 matrix you may not identify the important concerns.
12 That is its only advantage and that is what I said
13 in my testimony.

14 Q Have you as an environ-
15 mental panel found the Templeton matrix a useful
16 tool after its making to assist you?

17 A It is pretty.

18 Q How about some of the
19 other members, do other panelists have any feelings
20 about that matrix as a tool? Not that you used it,
21 but that it has been prepared?

22 WITNESS GUNN: I can't
23 say that we have found it particularly useful. I
24 can cite an example of work that we did for another
25 client in which he asked for a matrix to be assembled
26 and we did that work for him, but we remain uncon-
27 vinced of its great value and I think that he is
28 having difficulty in applying it, so we are not sold
29 on the idea of the great value of the matrix.

30 Q But that -- in the

1 example you've given us -- is that the only tool
2 you gave him?

3 A That is all he asked
4 for, yes.

5 Q Yes.

6 A That he specifically
7 asked for, yes.

8 Q Yes, but what I am
9 asking in this context, is you have done an environ-
10 mental impact assessment for Arctic Gas using the
11 method that Dr. Banfield has described. The Environment
12 Protection Board has used a matrix system and what I
13 am concerned with is in conjunction with the research
14 and work that you have done, does the matrix add
15 any assistance to your work?

16 A As has been said, it
17 presents only a two dimensional situation visually,
18 but to get real value out of it you have got to go
19 into other dimensions and we do that through our
20 multi-varial analysis of our data, so that we feel
21 that is a better approach.

22 Q And that is a computer
23 matrix that can show things on more than two dimen-
24 sions?

25 A Right.

26 Q All right, and do any
27 of the other panelists have any comment on that system
28 and whether it has been of assistance to them?

29 WITNESS JAKIMCHUK: It has
30 been of no significant assistance to me and I wouldn't

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1 just pick on the E.P.B. matrix. I have looked at others
2 as well.

3 Q All right, what about
4 a multi-dimensional matrix, what about a multi-
5 dimensional matrix, Mr. Jakimchuk?

6 A I don't know what a
7 multi-dimensional matrix is, quite frankly. I assume
8 you are talking about a computer type model, or
9 something of that nature. It doesn't solve -- these
10 things have been worked on a theoretical basis, I think,
11 for quite some time. There are whole institutes
12 devoted to their development and study and they
13 still don't solve fundamental problems that are
14 required in decision making because they have not
15 been able to define cause-effect relationships for the
16 multiplicity of biological variables that occur in
17 nature, that is the main difficulty and if you feel
18 that our approach is somewhat more primitive, it may
19 well be, but we are faced with having to reach decisions
20 and it is the old addage of the computer, the output
21 is contingent upon the input.

22 Q All right.

23 THE COMMISSIONER: Would you
24 say that in the final analysis it comes down to a matter
25 of judgment based on knowledge and experience?

26 A And what we refer to
27 as hard data.

28 THE COMMISSIONER: Yes. Well,
29 let's stop for coffee.

30 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)

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1 (PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

2 MR. MARSHALL: Dr. Gunn
3 was asked by Mr. Hollingworth to respnd to a question
4 pertaining to peregrine falcons and I have asked
5 Mr. Bayly if we might give that response now, sir.

6 WITNESS GUNN: Mr. Hollingworth,
7 you had reference to a statement in my direct testimony
8 on page 45 where I said:

9 "Of these it is known that at least
10 eleven lie within three miles of the
11 proposed route."

12 You asked how many of these were peregrine falcon
13 nest sites, and how many of these were within three
14 miles of a compressor site or airstrip. We have
15 that information now and the answer is that all
16 eleven of those nest sites were, are peregrine falcon
17 nest sites.

18 The statement refers to what
19 might be termed as the old prime route rather
20 than the new prime route. On the new prime route
21 seven of those nest sites, rather than eleven are
22 within three miles of the proposed route and one of
23 these nest sites is within three miles of a compressor
24 station. In fact, it is between one and two miles
25 from a compressor station airstrip.

26 MR. HOLLINGWORTH: And it
27 is the one site that is within three miles of a n
28 airstrip as well?

29 A That is right.

30 MR. HOLLINGWORTH: Thank you

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1 very much.

2 MR. BAYLY: Is that the
3 substance of Mr. Marshall's --

4 THE COMMISSIONER: It
5 appears to be.

6 MR. MARSHALL: Yes, that's
7 it, thanks, Mr. Bayly.

8 MR. BAYLY: Now, if we
9 can go back to you, Dr. Banfield, and this may be a
10 question that Mr. Hemstock or you may be able to
11 answer; given the approach that you took in your
12 assessment, what I would like to know is whether
13 or not Arctic Gas plans to use the critical path
14 method of execution and control of the project.?

15 WITNESS HEMSTOCK: Arctic
16 Gas will be using a method of control similar to
17 the critical path method, but not identical.

18 MR. BAYLY: Mr. Commissioner,
19 is that a phrase with which you are acquainted, or
20 should I ask the panel to identify that for you?

21 THE COMMISSIONER: I think
22 you'd better identify it. I was trying to sum it
23 up some other way --

24 MR. BAYLY: Mr. Hemstock,
25 perhaps you could give us what you understand by the
26 term, "critical path", and perhaps how the Arctic
27 Gas method differs from that.

28 A I am sorry, I can't
29 do that, I think, without reference to some material
30 we have in Calgary and the better description of our

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Cross-Exam by Bayly

1 proposed methods, so perhaps we could provide that.

2 Q Well, okay, could I
3 give an example then, Mr. Commissioner, and invite
4 Mr. Hemstock to agree or disagree that this would
5 show the critical path method. As I understand it,
6 if you are building an apartment building, you have
7 to do the things in a certain sequence. You have
8 to make sure that you order roofing, but you don't
9 want necessarily to order roofing until you make
10 sure that you can get the cement for the foundations
11 and the men with the heavy machinery to dig the hole
12 and you try and work these things out in a sequence
13 to show the time at which you need the various
14 items and the time at which various operations are
15 to be carried out, and should there be a hitch in
16 one of these that is caused by a lack of a certain
17 material, a strike, a piece of bad weather that sets
18 the construction back, then you must realign or
19 put back your schedule in order to predict when you
20 will need the various items, would that be a
21 fair appraisal of how this critical path method
22 works?

23 A Well, not really,
24 no. It is partly correct. The critical path method
25 is a method of showing diagrammatically just that,
26 a critical path; and as you plan a very large project
27 you will find that there are many inputs, or many
28 things that have to be done in sequence just as
29 you have mentioned. You diagram these on a piece
30 of paper which has as one of its axes, time; and you

1 find from that that there is one sequence or one line
2 of operation that is critical and that is the one that
3 is going to hold up the project, or controls the
4 timing of the project. You will find other things
5 that have to be done that are not critical or have,
6 as we say, float time; and that means that there is
7 some freedom there of, say, delivery date, or the
8 actually carrying out of a task which is not critical
9 in the overall project; and that is the basic concept
10 of any of these management techniques for large
11 projects.

12 Normally, the whole thing
13 is put on computer and handled in that method, or in
14 that way.

15 Q And I take it that if
16 there is some problem in supply or scheduling that
17 your computer can print you out a new schedule for
18 your critical path which will indicate the timing
19 of the various operations?

20 A That is correct.

21 Q In fact, as I understand,
22 they do this sort of thing with a project like the
23 Montreal Olympics where they are given a final
24 date and they have to figure out whether they can
25 complete on time, or whether they have to leave the
26 roof off the stadium in order to do so, in order to
27 divert their energies into those things that will
28 achieve the result on schedule, is that correct?

29 A That is right.

30 Q Now, can you think of

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 another project, apart from this particular pipeline
2 project, where environmental considerations have been
3 fed into the critical path model, because I assume
4 they will be and perhaps you can start with that
5 assumption. Is that a correct assumption?

6 A Yes, that is a correct
7 assumption. We have or are now working on a table
8 or a schedule which will indicate to us the critical
9 times of environmental factors so that that can
10 be worked into the overall schedule.

11 Q All right, and if some
12 event occurs like the one we described in the cross-
13 examination of Dr. Gunn, such as the geese having
14 to change their staging location, that this gets
15 fed into the computer and prints you out a new
16 ^{an} schedule based on/interruption of your old critical
17 path?

18 A Well, it may print out
19 an option, or it may well be that that is not on the
20 critical path, that there is sufficient float time
21 to take care of that.

22 Q All right, and would
23 you plan to have a critical path model for each
24 spread in which the environmental concerns are fed
25 in, because as I see it from the evidence we have
26 heard, they may^{be}/different on different portions
27 of the route.

28 A That will likely be
29 the procedure at the moment. So far as I am aware,
30 the planning is for the overall project, and as we

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McCart, Jakimchuk
Cross-Exam by Bayly

1 break it down there will be -- it will be broken
2 down into smaller and smaller components.

3 I am not sure that it will
4 by a spread basis. It probably will be.

5 Q Yes, and then you will
6 have a master one, I take it, so that you will
7 be able to tell whether your entire project is on
8 schedule or whether you should borrow some equipment
9 or men, say, from one spread, to help out another
10 spread, to finish close enough to on schedule that
11 you don't have to take an additional season, because
12 I understand that you really want to avoid that
13 kind of problem.

14 A That is right.
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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bavly

1 Q Now, you will be getting
2 advice from the environmentalists on what matters to
3 them are important and I gather you will then have to
4 make a determination of which ones of those get put
5 into your model, or am I wrong? Do you put everything
6 into this computer model?

7 A The model is not one that
8 will handle or will accept concerns. It deals with
9 activities and the criteria would be whether an environ-
10 mental concern would have a modifying effect on activity.

11 Q All right.

12 A Now those would be put
13 in, in that form.

14 Q Is this not what I would
15 understand to be a matrix?

16 A No sir.

17 Q Well, what you're saying
18 though, is that concerns won't be fed in but what will
19 be fed in is possible conflicts between an activity of
20 man and say an activity of a plant species or an
21 animal or bird or fish species.

22 A No, what will be, as I
23 understand it, what will be in the computer model
24 would be the restrictions as to time or space due to
25 environmental reasons, and the environmental advice we
26 get will outline those. But what would appear in the
27 computer program or in the critical path approach would
28 simply be the limitations to the job.

29 Q All right, and it is
30 only at those points where an environmental concern

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McCart, Jakimchuk
Cross-Exam by Bayly

1 gets translated into the computer and raises an issue
2 that conflicts with the critical path that you would
3 have a stoppage of work, or a stoppage of a certain
4 activity, as I understand it. In other words you
5 might have float time to keep your barges offshore
6 for two weeks before bringing material into where the
7 geese are staging, or you might have to go to an
8 alternate site because there was a critical problem
9 of getting the barges back to Vancouver or wherever
10 they came from -- or Hay River or wherever it may be.
11 Would you agree with that?

12 A Well, I agree with the
13 latter part of it. What was the question?

14 Q What I want to find out
15 from you, Mr. Hemstock, is what causes a stoppage?
16 Does something get printed out by the computer saying
17 that "We have no room just to leave this material
18 standing out in the middle of the Beaufort Sea for
19 two weeks, we have to do something with it. Here are
20 three options."

21 A Well, I think that
22 we're confusing two things here. We're confusing the
23 actual management of the operation in the field and the
24 use of a technique for project management, and I
25 wouldn't think that the spread manager, if he had an
26 environmental problem in the field, would go to the
27 computer in Calgary to find out what to do. He would
28 be talking to the environmental inspector on his
29 staff at the spread, and between the two of them they
30 would try and come to agreement. Now after the

Banfield, Gunn, Hemstock
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Cross-Exam by Bayly

1 -- if they can't come to agreement or if there are
2 some alternatives that they want to check with senior
3 management in Calgary, then it might go back and there
4 might be a check with the scheduling to see how this
5 -- how perhaps two options would affect the overall
6 schedule. But normally these things would be handled
7 in the field and you wouldn't go to the overall project
8 management.

9 Q All right, but in order
10 to figure out whether or not it would be critical for
11 timing, in other words if a certain item like a ditcher
12 wasn't able to land, the ramifications of that, even
13 if it's a decision in the field, may be greater than the
14 spread manager and the environmental person can contem-
15 plate on their own.

16 A As I suggested, in certain
17 cases they would go to Calgary or to the head office
18 for that kind of advice, and again you may or may not
19 want to use a computer print-out because it would be,
20 sometimes it would be quite obvious what the alternatives
21 were.

22 Q And I can appreciate
23 that. You've got to make day to day decisions, but
24 there are some things that management is going to want
25 to know because they may have something to do with the
26 cost factor, for example, that the significance of which
27 may escape the people in the field. Delays cost
28 money, for example.

29 A That's part of the value
30 of this as a management tool.

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Q Yes. Really as you've
2 defined it, it's a management tool as opposed to a
3 tool for the people in the field.

4 A Yes sir.

5 Q It may be useful to the
6 people in the field, if management wants to make suggest-
7 ions to them, they may be able to pick from various
8 suggestions of alternatives on the basis of their
9 running of the project and their environmental concerns.

10 A As I see it, the main use
11 to the construction personnel of this kind of a tool is
12 that it requires a very careful planning and a very
13 careful documentation of the planning ahead of time, so
14 that it can be properly assessed, and that then becomes
15 a working document for their field work. The tasks
16 are all described in great detail, the time for each
17 task is described, and that is material which they have
18 on hand as they plan their field program.

19 Q Do you contemplate that
20 this would be something available to the regulatory
21 people, this kind of information, so that if Arctic
22 Gas says, "We must do this," that that can be evaluated
23 by them in light of the critical path problems that
24 management appreciates, but which the regulatory
25 people may not?

26 A I don't know.

27 Q Would you agree that it
28 would be useful in trying to arrive at sensible decisions
29 as between regulatory people and management from the
30 point of view of a person who is experienced in the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 field in large projects?

2 A Well, not necessarily,
3 because you just can't look at the results of this
4 kind of planning on an ad hoc basis. I think you have
5 to be part of it right from the start, and I wouldn't
6 see the regulatory people wanting that kind of thing.
7 It seems to me that perhaps Arctic Gas would translate
8 the concerns they have and the ramifications of decisions
9 to the regulatory people and that would be the best
10 approach.

11 Q All right, but that
12 wouldn't, I suppose, give them the advantage of being
13 able to assess them in the same way that the manage-
14 ment of Arctic Gas would have.

15 A I think that it might be
16 easier to assess because many of the other factors
17 which perhaps were irrelevant would not be involved.

18 Q Now, this putting in
19 of the environmental constraints into this management
20 tool may be pioneering in the sense that Dr. Banfield
21 uses the word. Can you think of another project in
22 which environmental problems have been fed into the
23 critical path model?

24 A I'm not aware of any.
25 Perhaps Dr. Banfield is.

26 Q Dr. Banfield?

27 . WITNESS BANFIELD: Sir, I am
28 not aware of any.

29 Q And then you would feel
30 that this is the new dimension to this management

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1
2 technique?

3 A Yes sir.

4 Q And I gather from Mr.
5 Hemstock that what you would be feeding in at least
6 initially would be dates based on the baseline data
7 that has been collected by people like Dr. Gunn, Dr.
8 McCart, and Mr. Jakimchuk. That is probabilities to
9 start with. "Do not start seeding before June 20th
10 on the North Slope because that's the last known date
11 of calving." This sort of thing. Would you agree?
12 Perhaps Mr. Hemstock, because --

13 WITNESS HEMSTOCK: That's the
14 kind of data that is fed in.

15 Q And what modifies that
16 kind of data is if for some reason calving should
17 finish up earlier and you wanted to get started seeding
18 earlier rather than having people sitting around using
19 up prepaid helicopter time, for example.
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1 A No, I think that is an
2 unlikely situation because if the planning is done
3 from the start with the input of a likely time, then
4 people should not be sitting around. They should
5 be not available until that time.

6 Q Yes, all right --

7 A The thing that you
8 would want to be sure of is that there was sufficient
9 freedom in the timing that a few days delay because
10 of some environmental factor was adequately taken
11 care of in the planning and this is where we need
12 input, not only on the time, but also on the probability
13 of those times being correct.

14 Q And the unforeseen that
15 takes place, like Dr. Jakimchuk finding out that the
16 caribou are coming more quickly than they have come
17 perhaps for 20 years, for some reason that nobody
18 can predict, is like a strike in the way it gets
19 fed into the critical path model?

20 A Yes.

21 Q It means that you
22 can't do some things. Will your model produce
23 alternatives for management to recommend other things
24 that can be done? For example, if you got all
25 those men out there and you are paying them wages,
26 do you anticipate that your model will be able
27 to say, "Well, if you can't dig the ditch, " or let's
28 say, let's use a better example, "If you can't blast
29 because that may be really disturbing to the caribou,"
30 at least you could go and move down the line and blast

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McCart, Jakimchuk
Cross-Exam by Bayly

1 thirty miles towards the far end of it?

2 A That may be right in
3 principle, although that example, I don't think, is
4 feasible.

5 Q All right, that may be
6 a poor example, but you will be looking for alternate
7 things for people to be doing to keep on schedule,
8 am I right?

9 A Well, that is part of
10 the whole project management procedure is to do the
11 planning in such a way that you take care of as
12 many of these possibilities as you can.

13 Q If we can go back
14 to you, Dr. Banfield, for a short time. I am interested
15 in the fact that certain respected scientists have
16 different recommendations from those hired by Arctic
17 Gas and what I am wondering is if this is based on
18 your observations on the difference between a
19 doomsday philosophy and an optimistic philosophy --
20 you may not want to use the term "optimistic", but
21 whatever the other end of the spectrum is from the
22 doomsday -- and what I would ask you, is, first
23 of all, do you think that that has something to
24 do with the reason that people have fears that have
25 not been quieted, whereas this panel has confidence
26 that certain things can take place?

27 WITNESS BANFIELD: I don't
28 think it is strange that competent scientists have
29 different viewpoints. It is on that very basis that
30 science progresses. That is the first point.

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McCart, Jakimchuk
Cross-Exam by Bayly

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29 different viewpoints. It is on that very basis that
30 science progresses. That is the first point.

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1 Q Yes.

2 A The point that I have
3 tried to make, and I am quite sure that my colleagues
4 on this panel would agree, is that we have reached
5 our conclusions based on what we believe is solid,
6 scientific information, and we, each one of us has
7 outlined how the information was obtained, how it
8 was analysed, and we feel that we are on firm ground .
9 This may be a reflection, it may be a sort of chau-
10 vinistic reflection on people who hold opposite
11 viewpoints, and in which case I am willing to accept
12 that I am chauvinistic in this viewpoint. My question
13 to someone who drew a different conclusion, my
14 question would always be simply on what grounds, on
15 what factual grounds do you draw such a conclusion?

16 Now, I have had personal
17 experience from the other side of such a discussion
18 in that I served as an expert witness for the James
19 Bay Indian Association in the proceedings before
20 Justice Albert Malouf in Quebec Superior Court,
21 and I appreciate the emotional strain that I felt
22 to testify under oath, something dramatic, like, that
23 I believe that this proposal, the James Bay Corporation
24 will result in a 90% destruction of the Ungava
25 caribou herd. I felt that emotional strain to be able
26 to say something like that. But as a scientist I
27 couldn't. I actually based my judgment on the area
28 of the reservoirs, the area that would be flooded by
29 the reservoirs in what was a prime winter range and
30 based on that, on that data, when I was asked that

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1 question I said, "I do not believe that the result
2 of this construction, this facility could be more
3 than the destruction of somewhere between five or
4 ten per cent of the caribou herd." That was based
5 simply on the area that would be flooded, the five
6 or ten per cent of their prime winter range was
7 going to be flooded.

8 At the time there were
9 conservationists who were disappointed in my testimony
10 and looking back over it I am now happy that I was
11 so objective because there has been a study published,
12 a study that was undertaken at the University of
13 British Columbia, using a systems analysis approach
14 to the James Bay study. It was published in the
15 Journal of the Fisheries Research Board, January
16 to April 1975, by Carl Walters, in which the environmen-
17 tal and sociological impact of James Bay project was
18 modeled and I quickly looked to their conclusions
19 on caribou and that study indicated a drop in the
20 caribou population, it's done in a graph, it seemed
21 to me about five to ten per cent. After some period
22 of time, I think by the year 2000 they forecast an
23 increase in the caribou population because they felt
24 that more of the caribou hunters would by this time
25 be involved in a salaried operation and would not
26 be hunting caribou for country game.

27 I answered in great length,
28 but I think it is an important question that you
29 have given me.

30 Q Let me go into some of

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 the things that I feel that the panel has accepted
2 and that other people with different opinions may
3 not have accepted, and I don't want you to think
4 that I am saying that you've accepted them unreasonably
5 because they will be conclusions arrived at by
6 competent engineers and management, etc., which you
7 may have to take as assumptions because they are
8 beyond your own experience, but let me test some of
9 these with you, Dr. Banfield.

10 First of all, is it true
11 that you assume that the pipeline can be built in
12 the way that the engineers predict that it will
13 be built?

14 A Yes, that is a basic
15 assumption. I think all of us have written this
16 in our direct testimony in some form, that our
17 predictions are based on the assumption that the
18 pipeline can be built under the conditions, the
19 situations outlined by, you say, the engineers.

20 Q And a further assumption
21 would be that if something technical arises as a
22 problem, that the engineering staff has the geotechnical
23 knowledge and ability to overcome that with the
24 mitigative measures that they have proposed?

25 A Generally I can agree
26 with that statement you have put towards me except
27 something. I think that that would have to be
28 qualified into some reasonable scale. I am not
29 thinking of an earthquake of 8.5 on the Richter
30 scale.

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Cross-Exam by Bayly

1 Q Right. I don't mean
2 that sort of occurrence. I mean, perhaps, a fault in
3 a piece of steel pipe that requires a mending operation
4 to take place, that this can be done in the way that
5 the engineers predict it can be done?

6 A Yes, sir.

7 Q Another assumption
8 that you must accept, I suggest to you is that
9 the employees of the pipeline company can be controlled
10 in the way that Arctic Gas says they can be controlled?
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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 A Again a slight problem,
2 the way Arctic Gas says they can be controlled and the
3 way Arctic Gas proposes that they would institute con-
4 trol on the employees, and Arctic Gas would expect that
5 any regulatory agency would reinforce that type of
6 control on the employees.

7 Q I accept that, and feel
8 free when I do suggest an assumption to you, either to
9 reject it or modify it. | The fourth assumption is
10 that the pipeline exists by itself in isolation from a
11 road facility across the North Slope.

12 A That is true, and I almost
13 interjected yesterday during your line of questioning
14 that this is one of our basic insistant points, and
15 the engineers have also insisted that they can build
16 a pipeline by means of a snow road, and we have always
17 -- this is the understanding amongst the engineers and
18 environmen talists that our predictions are predicated
19 by that assumption.

20 Q The next --

21 THE COMMISSIONER: Excuse me.
22 That's absolutely a vital assumption, I take it, be-
23 cause if an all-weather road were necessary, and one
24 has been deemed necessary in Alaska to construct a
25 highway -- to construct the pipeline; when you go down
26 the valley you've got the river as your highway, you
27 can use ^{it} /in summer; but along that North Slope if it were
28 found necessary to build an all-weather road then I
29 take it that the predictions that you and your colleagues
30 have made regarding impact on the North Slope are

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McCart, Jakimchuk
Cross-Exam by Bayly

1 predictions you would not want us to act upon. Is
2 that about the size of it?

3 A I realize I do not have
4 the right to include my colleagues in that.

5 Q Well, just yourself then.

6 A But personally yes, that
7 is my - that predicates my conclusions.

8 MR. BAYLY: Q And would there
9 be a member of the panel that disagrees with that?

10 WITNESS GUNN: In our view,
11 an all-weather road would have serious implications
12 that we would want to consider again, but beyond that
13 is the question of who would use that road. The
14 question of public access to that road which might
15 materially increase the impact, if it were not controlled.

16 THE COMMISSIONER: Yes, and
17 you said, Dr. Gunn, and so did Mr. Jakimchuk, that
18 so far as the birds and the caribou are concerned
19 the greatest danger is uncontrolled access by people.
20 I realize that access along any all-weather road would
21 be the vital consideration. In Alaska they are talking
22 about limiting access from Fairbanks north along that
23 all-weather road. Yet I wonder really how you can
24 do that in the sense that if a road is there and it's
25 not like a logging road in B.C., and most of those are
26 opened up now. Well, at any rate, carry on. I was
27 told that the question I asked yesterday morning took
28 five pages, so I should keep my interjections down to
29 half a page.

30 MR. MARSHALL: I think Mr.

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1 Templeton will be happy to relinquish the title that
2 he has held for many months of the longest questions.

3 THE COMMISSIONER: Those are
4 good questions.

5 MR. MARSHALL: It bore repeating,
6 sir.

7 MR. BAYLY: Q The next assump-
8 tion, Dr. Banfield, that I would invite you to comment
9 on is that you also must assume that a project, no matter
10 what size it is and what it costs, can be stopped and
11 will be stopped by the applicant if the environmental
12 concern that you express or have expressed is compelling
13 enough.

14 WITNESS BANFIELD: I'll have
15 to discuss that a bit. The pipeline industry is
16 in fact very highly controlled by government.
17 I think the environmental concerns that you mentioned,
18 I alone do not hold those. If they were mine alone I'm
19 sure the pipeline would not be stopped. I expect that
20 there are a large number of voting Canadian citizens
21 who hold similar views and for that reason I think
22 the stopping of the pipeline could be requested with
23 considerable force.

24 Q Yes, I perhaps shouldn't
25 have used the word "stopped" because it has other
26 connotations from the one I meant. I was considering
27 really delays rather than abandonment of the project
28 in the middle or something like that. Is that what
29 you understood by my question?

30 A No, I didn't. That's why

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1 I had great difficulty. I don't want to claim such
2 power or even association with such power.

3 Q Yes. Now could you address
4 yourself then to the assumption that if the environmen-
5 tal concerns expressed by a group which you represent
6 were compelling, that the project would be delayed to
7 accommodate them? Do you make that assumption?

8 A No, that's an entirely
9 different question than the one I was addressing. I
10 thought you were talking about reaching an archaeologi-
11 cal site and stopping the construction. At some point
12 -- at some national, or point of national interest there
13 are undoubtedly other factors to be considered to
14 delaying or prohibiting the construction of this
15 pipeline. I'm not sure that environmental concerns
16 alone are the governing factors.

17 I'm sorry, apparently my
18 colleague tells me I still haven't got the question.

19 Q Well, I was actually
20 going to come to the governmental one a little later.
21 What I was concerned with was, let's take the example
22 of Dr. Gunn's snow geese. If the snow geese cannot
23 stage where they generally stage on the North Slope
24 and are diverted to the Mackenzie Bay area, the assump-
25 tion is that the applicant will delay whatever is going
26 on in the project or divert whatever has to be diverted
27 in order to avoid this conflict. Is that the kind of
28 assumption that you have made?

29 A I see. Yes, again I had
30 a problem with the period of delay. I was thinking of

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McCart, Jakimchuk
Cross-Exam by Bayly

1 decades.

2 Q Oh yes, no, I'm sorry.

3 A Can you repeat your
4 question?

5 Q All right. Have you
6 assumed that when an environmental occurrence which you
7 have not predicted specifically, or you may have
8 generally, occurs, the applicant will either delay
9 whatever it is doing or divert its energies into doing
10 something else until the danger has past?

11 A Yes, there also might be
12 some mitigative procedures that could be adopted that
13 would by-pass the actual concern.

14 Q Now, the next one deals
15 with government. Do you assume for the purpose of
16 coming to the conclusions that you have come to that
17 the government will be able to create regulations and a
18 regulatory agency which will be able to monitor the
19 project from the public's point of view?

20 A Yes sir.

21 Q And are these assumptions
22 ones that this panel shares, or would any members of
23 this panel have objection to any of those? I realize,
24 Dr. Gunn, your reservations about the concern or the
25 assumption about a road may depend on access; but
26 apart from that. C an I take that as a "No" answer?

27 MR. MARSHALL: I think that is
28 a "No" answer.

29 WITNESS JAKIMCHUK: I have
30 forgotten all the assumptions.

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1 (LAUGHTER)

2 MR. BAYLY: All right, I tell
3 you what, gentlemen, perhaps the thing to do is for you
4 to have a look at these in the transcript, I gather that
5 you will all, or representatives of your disciplines
6 will all be back at the cross-delta portion and you
7 could comment on those assumptions that Dr. Banfield
8 has agreed to at that time. That would give you time
9 to assess them.

10 THE COMMISSIONER: Well, you
11 just noted those assumptions for purposes of your
12 examination, did you?

13 MR. BAYLY: Yes.

14 THE COMMISSIONER: I think
15 those were important issues, it seems to me. You're
16 trying to circumscribe the evidence of these gentlemen,
17 or at least show that its application may well be
18 limited on the basis that it proceeded on these assump-
19 tions, and I'd like to hear you gentlemen tell us in
20 due course, as Dr. Banfield has done, whether your
21 evidence is confined in its application to these
22 assumptions.

23 MR. MARSHALL: I missed one
24 of them, Mr. Bayly. I don't like to leave these
25 things hanging around. Maybe we can deal with it this
26 afternoon. We started out with the assumption that
27 a pipeline can be built; as the engineers say it can
28 be built. The employees could be controlled by the
29 company in the way they say they will, and there will
30 be no road across the North Slope, and that the project

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1 can be stopped if there are compelling environren tal
2 concerns, and the government will be able to regulate
3 and monitor the project. Was there one other?
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1 MR. BAYLY: I think that
2 was, with the exception of the fact that Dr. Banfield
3 had given two answers to the project being stopped.
4 One based on stopping it entirely or for a period
5 of decades and another based on it being, a particular
6 operation being delayed because of an environmental
7 concern of its employees.

8 MR. MARSHALL: I thought in
9 that question you were interested in whether or
10 not Arctic Gas would indeed stop, perhaps temporarily
11 or employ mitigative measures if an environmental
12 concern arose?

13 MR. BAYLY: Yes, that was
14 the other portion of his answer. The other one that
15 you've missed out, Mr. Marshall, is that the engineers
16 can do what they have expressed confidence in being
17 able to do --

18 THE COMMISSIONER: No, he
19 had that. Well, I -- it is my own view, having
20 listened to the evidence of this panel, that they
21 all really did proceed on those assumptions, and
22 so when you are considering the matter, gentlemen,
23 if you didn't proceed on those assumptions, you can
24 tell me.

25 WITNESS JAKIMCHUK: Now
26 that they have been read over I would agree with
27 that, those are my assumptions as well. I would
28 probably maybe answer a little differently than
29 Dr. Banfield did on one or two of them in the discussion
30 but in general, they would be my assumptions.

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1 MR. BAYLY: Well, I am prepared
2 to have an answer to some of these things after the
3 panel has had a chance to mull them over. Now, one
4 of them that Mr. Scott informed me of, Mr. Marshall
5 might not have got quite correctly and that was with
6 regard to the North Slope. The wording of the
7 assumption was that you had assumed that the pipeline
8 would be built in isolation from a road across the
9 North Slope.

10 MR. SCOTT: Well, Mr. Commis-
11 sioner, I understood, and it will save us, perhaps,
12 some time later, as I understood the assumption, and I
13 don't see any reason why it should be restricted to
14 the North Slope. The expert prediction is based on
15 the assumption that a gas pipeline will be built and
16 without regard to the construction of any other
17 transportation facilities, such as roads, oil pipelines,
18 highways, railroads, or any of those things. None of
19 these gentlemen, as I understand it, or any who
20 have gone before, are predicting on any other assumption.

21 THE COMMISSIONER: Exactly.

22 MR. BAYLY: Yes, I am
23 not sure we have --

24 MR. MARSHALL: I think the
25 point Mr. Bayly was raising, Mr. Scott, it may be an
26 additional point, but you might --

27 MR. BAYLY: But let's ask that
28 one just to make sure that we have that one as well.
29 Dr. Banfield, is that an assumption which you have
30 made in basing your predictions?

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WITNESS BANFIELD: I agree --

I think that that is another assumption. I was
addressing --

Q Yes, I think it --

A -- the method of
construction which was in a phrase on a snow road --

Q Yes, well, let's deal
with that one, then.

A Well, it sounds a bit
devious, could Mr. Scott or could you rephrase this?

MR. BAYLY: I don't mind
letting Mr. Scott repeat it, rather than --

THE COMMISSIONER: Could I
just see where we are at here because it seems to me
that we are making heavy weather out of something
that is fairly straightforward. Arctic Gas came
along to you and said "where do you want to build
this pipeline?" Here, our engineers, they say, they
can overcome the problems of thaw settlement,
frost heave, and so on and so forth and we will build
it in the wintertime, we will only take one winter
season to do it. We will not build an all weather
road, we will do this by means of snow roads. We
will have so many spreads and so on, and that is all
and you have made your predictions on the basis of
the whole project as they have outlined it to you
and you have assumed that there will be no all-weather
road. You have assumed that this thing will be
regulated in one way or another so as to bring the
project to a halt if immediate mitigative measures have

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1 to be taken at any location before construction can
2 continue and isn't all as simple as that?

3 A Well, I thought it
4 was, sir.

5 MR. SCOTT: Mr. Commissioner,
6 the question that I propose and perhaps someone is
7 going to tell me I should do it in my own turn, except
8 that Mr. Bayly is dealing with these general assumptions --

9 THE COMMISSIONER: Yes, go
10 ahead.

11 MR. SCOTT: Is it correct
12 that the experts have made their prediction of impacts
13 on the assumption that a gas pipeline as proposed
14 by Arctic Gas will be installed where they propose
15 to install it and without regard for anything else,
16 and by that I mean without regard for the development
17 of a corridor and without regard for consequent
18 development?

19 Now, I would have presumed
20 the answer to that question is yes, but I think as a
21 matter of record it would be useful to have it.

22 THE COMMISSIONER: Well, I
23 assume the answer is yes, and unless anyone wants
24 to grab a microphone and say that's wrong, we will
25 take it that it is yes.

26 MR. BAYLY: Is that correct,
27 Dr. Banfield, is that an assumption that you've
28 proceeded on?

29 A I have a little difficulty
30 with the question in the sense that, you know, there is

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Cross-Exam by Bayly

1 a highway partially built and there are some other
2 transportation facilities that --

3 THE COMMISSIONER: I thought
4 we --

5 A It is a complex question.

6 THE COMMISSIONER: Yes, I
7 thought we were talking about the North Slope.

8 MR. SCOTT: No, I'd be
9 talking about the whole pipeline, and I think that the
10 question is an important one because I presume that
11 where the Mackenzie Highway exists or where the
12 Dempster Highway exists, the panel in considering
13 the impact on caribou of the gas pipeline, for
14 example, has not been able to exclude the Dempster.
15 I mean, they can't take it off the map, and they
16 have given us their opinion of what the impact will
17 be of adding a gas pipeline to what is now there.
18 Now, maybe that is right and maybe that is wrong.

19 THE COMMISSIONER: That is
20 a good question.

21 MR. MARSHALL: It is a good
22 question and it is a complicated question and it is
23 something, it seems to me, that is extraneous to what
24 Mr. Bayly was pursuing. It is the whole question of a
25 consideration of a corridor concept. I don't argue
26 with the validity of the question.

27 MR. SCOTT: Well, let me
28 simply justify it and I don't ask that it be answered
29 now, but I hope that it will be answered at sometime,
30 because if the panel has considered the impact of a

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1 gas pipeline alone, and has omitted the cumulative
2 impact with respect to the facilities that now exist
3 in the first case or has omitted consequent impacts
4 that may follow immediately upon the construction
5 of a pipeline, someone may say, "Well, you have
6 performed an academic exercise of great interest,
7 but which really predicts nothing that we need to
8 know about the future, and I would just like to
9 get it straight at some point exactly what these
10 predictions are based on in terms of that assumption.

11 MR. BAYLY: Is that a question
12 that you care to answer now, Dr. Banfield, or would
13 you prefer to wait until Mr. Scott cross-examines
14 you?

15 A Well, it is a question
16 that I am prepared to answer briefly now with the
17 understanding that it is a very large question and
18 I felt was the subject of even a special session of
19 this Inquiry on cumulative impact.

20 I have already previously
21 made statements on cumulative impact and I did have
22 in fact one last statement to make, and that is
23 that -- I will pick up one of your phrases, Mr.
24 Scott, I think it was an academic question in the
25 guidelines to suggest that the gas pipeline people
26 could undertake a meaningful study of cumulative
27 impact. To me it is a second project organization
28 that could do meaningful cumulative study, because
29 they would be already given the environmental impact
30 assessment and monitoring of the first project, and

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1 combined with their environmental impact assessment
2 of their project, they could in fact do an objective
3 study.

4 Now, as we have been ham-
5 mering away, we have been deprived of having the
6 information on the first facility, which, in this
7 case, were the two highways, and that is why I
8 believe that we have addressed the subject. We
9 have tried to come up with some meaningful answer
10 and I have now explained the real dilemma that we
11 have faced.

12 Q Well, Dr. Banfield-,
13 perhaps there could be some thought addressed --
14 I realize the difficulty, but it appears then,
15 correct me if I am wrong, that you found it impossible
16 to consider an additional facility in your appraisal
17 of the environmental impacts. One, because the
18 one that went before was one in which you could get
19 no information, for reasons that none of us know, and
20 the other is because the next facility, we don't
21 know what it is going to be and even if we do, timing
22 and methods of construction and requirements for
23 permanent roads or no requirements for permanent
24 roads can't be assessed except in an academic fashion.
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1 A Yes sir, you've helped
2 me out, Mr. Bayly. I forgot to follow up the other
3 constraint is, of course, we don't know what's coming.
4 We don't have the detailed information. If it's an
5 oil pipeline, we do not have the detailed information
6 for CAGSL to give it a fair appraisal and that's the
7 basic problem. Now, one other thought. The point is
8 that our method of study, as I have said, and continue
9 to say, has been scientific and objective as far as
10 we could manage. We could come up with predictions,
11 but then we are forced back into simply scenario
12 writing, you know, off the top of your head what might
13 be the thing, and then you do as you're perfectly aware,
14 you make a number of assumptions and you build up a
15 scenario.

16 Q I understand, and you
17 could do that, but this isn't the approach that you've
18 taken, is that correct?

19 A That's correct.

20 MR. SCOTT: Mr. Commissioner,
21 I reluctantly pursue this, but it seems now is a con-
22 venient time. Yesterday Dr. Banfield made some,
23 I think, some entirely just observations about the
24 Assessment Group Report, and I think he implicitly
25 criticized it for inviting a measured evaluation of
26 (a) the Dempster as against the pipeline, and I can
27 understand that and there's no particular quarrel with
28 it. It seems to me that the problem that is raised,
29 though, is this. The Assessment Group Report assumes
30 that the Dempster Highway exists and will be used, and

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1 what I'm concerned about, for example, is when Mr.
2 Jakimchuk predicts the effect on the caribou herd, is
3 he predicting the effect that will result when both
4 the Dempster and the pipeline are in existence and
5 used, or is he attempting to isolate only the pipeline
6 and pretend it will be built in a situation in which
7 there is no highway? Now I'm not asking him to decide
8 which is responsible for the greatest impact, that
9 may be difficult or impossible to do. I'm simply asking
10 whether he is considering the existence and use of the
11 highway in predicting what will happen after the
12 pipeline is built. In other words, is he taking the
13 reality that now exists, and adding a pipeline and
14 saying, "This is my prediction," or is he simply saying,
15 "If you put a pipeline alone in there, this is my
16 prediction."

17 WITNESS JAKIMCHUK: Mr. Scott,
18 I just briefly comment on that, and during my cross-
19 examination and my testimony is related to the impact
20 of the proposed gas pipeline. However, I have addressed
21 as I did yesterday, in some detail my concerns for
22 this other development that are taking place and I
23 hope I expressed precisely what those concerns were.
24 But my testimony is oriented towards the pipeline it-
25 self.

26 THE COMMISSIONER: Well, no
27 question about that. As I understand it, Mr. Jakimchuk
28 is saying, "Here is what will happen if we build a
29 pipeline but don't forget about the Dempster Highway
30 and if there is a major threat to the caribou herd it

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1 comes from the Dempster and not from the pipeline."

2 But certainly he wasn't taking
3 the Dempster as a given, assessing its impact, and then
4 adding on the impact of the pipeline and then saying,
5 "Here it is."

6 Well, I think we should
7 adjourn for lunch and come back at two, and how are
8 we getting on? This is very interesting, I'm just
9 curious to know how much longer you will be?

10 MR. BAYLY: I expect, Mr.
11 Commissioner, half an hour or less. I've said that
12 before, but it is possible -- and I will be continuing
13 this line somewhat, but it may take longer than that.
14 But in terms of pages I haven't got very far to go.

15 MR. SCOTT: Mr. Commissioner,
16 just because we're at lunch I'm not certain that you,
17 sir, or perhaps M r. Jakimchuk, because I've expressed
18 it improperly, have understood the assumptions
19 which I am directing myself. If you take a facility
20 that now exists and let's take the Mackenzie Highway,
21 if you want, where it exists, or the Dempster, that
22 can't be undone and it will be used. Am I correct in
23 assuming -- and before we get to that, I am not interested
24 at the moment in any attempt to evaluate who is going
25 to be responsible for the -- for what proportion of the
26 impact, that is while I heard Mr. Jakimchuk yesterday
27 say, and I accept it, that the highway has much greater
28 impact, is much more potentially damaging than the
29 pipeline, I'm not at the moment interested in that.
30 What I'm interested in is his prediction based on the

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1 existence of both of them, or is it based on the
2 existence of only one, namely the gas pipeline? Now
3 that's not the corridor concept which is to predict
4 events that occur in the future.

5 MR. MARSHALL: Well, it seems
6 to me just as a matter of clarification, the Dempster
7 doesn't exist beyond Fort McPherson or up from Dawson
8 City, so we're talking about a hypothetical situation
9 not -- I appreciate your concern. You want to take the
10 situation that now exists and not exclude some of these
11 other things, like the Mackenzie as now built.

12 MR. SCOTT: Right.

13 MR. MARSHALL: Is this something
14 you want to pursue in your cross-examination?

15 MR. SCOTT: I want to deal
16 with it at some point. I just want to know what the
17 assumption has been in approaching the evaluated --
18 the impact of a gas pipeline? Have they assumed the
19 existence and use of facilities that are now there, or
20 have they tried to abstract?

21 MR. MARSHALL: Well, that's a
22 pretty concrete question. I think they can answer that
23 now, if you wish.

24 MR. SCOTT: All right.

25 MR. MARSHALL: Mr. Jakimchuk?

26 WITNESS JAKIMCHUK: Well, once
27 again my comments in my assessment of the impact of the
28 gas pipeline relate to the gas pipeline, recognizing
29 that there are other developments taking place. But
30 those comments are not meant to try to give an overall

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1 assessment as to at what point does a straw break the
2 camel's back, so to speak. I have discussed the
3 Dempster Highway and its implication, but really my
4 comments have been oriented towards the hows, the whys,
5 the wheres of a gas pipeline, and the conclusions that
6 I've reached are based upon the work that we have done
7 and based upon a consideration of the question as to
8 will that pipeline add something more severe, a more
9 severe strain, considering these other developments.
10 But really I've been quite oriented towards the gas
11 pipeline.

12 Q Dr. McCart, do you have
13 anything to comment on this point?

14 WITNESS McCART: Yes, I'd say
15 we were concerned about the effect of the gas pipeline.
16 We have not tried to assess and we haven't put down
17 on paper an assessment of what the eventual fate of
18 fish populations might be in the face of other develop-
19 ments such as the highway and such as the proposed
20 oil pipeline.

21 MR. SCOTT: Even where they
22 now exist?

23 A We have this in mind,
24 of course. My whole feeling is that in view of what
25 I expect will be the very much greater effect of the
26 highway, that we will not be able to detect significant
27 -- if we were to carry out a monitoring program, I do
28 not think that we could predict a significant incremental
29 effect of a gas pipeline in a situation where there is
30 already a highway in existence. I should point out that

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1 when we set up our monitoring program at Chick Lake,
2 one of the things we wanted to find out, we presumed
3 at that time that the highway would be constructed
4 at that point sometime in the near future. One of the
5 things we wanted to find out, what in fact was the
6 incremental or what would be the effect of the highway
7 in comparison with the effects on the same parameters
8 of the construction of the gas pipeline. Now we're
9 not going to be able to do this at any time in the near
10 future, apparently. So we have it in mind at all times,
11 but basically we want to construct the gas pipeline to
12 minimize the impact on aquatic habitats, and that has
13 been our concern and not to take into account the
14 overall impact of all of the activities which might take
15 place in that corridor along the Mackenzie.

16 It seems to me, incidentally,
17 in looking at this, that certainly the government in
18 instituting this notion of a corridor concept, should
19 have in fact looked at this itself. What, is it a
20 feasible thing to have a corridor, and what might be
21 the overall impacts? It might be much better to
22 spread these facilities out over the country. This
23 is something that should have been taken into account
24 at the time that this notion of a corridor was set
25 forward.

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MR. MARSHALL: Dr. Gunn.

THE COMMISSIONER: Well, it was
the in thing when they drew it up .

A Well, I don't think
it was very well thought out. It certainly was
the in thing. Everybody talks about corridors.

MR. BAYLY: Dr. Gunn, do
you have any recommendations on that?

WITNESS GUNN: Our studies
and our recommendations have been based on the
concept of a gas pipeline. In regard to highways that
are at present existing, neither the Dempster nor
the Mackenzie, is at present complete and this makes
a big difference on the impact. As far as the
Dempster Highway is concerned, we have expressed our
concern about it, but it is a government operation
and is subject to government regulation as to
its use and we are not aware at the present time
of what regulations these will be and for that reason
it is difficult for us to assess the impact.
But if it were simply an ordinary highway with
unregulated use, then I would agree with Dr. McCart
that the impact of the pipeline over and above that
might be very difficult to detect.

MR. MARSHALL:

Dr. Banfield, did you
have anything to add on this?

WITNESS BANFIELD: Well, I
am glad Dr. McCart mentioned one point, because I had
missed it, but as a matter of fact we had intended to
monitor cumulative effect at our Chick Lake site,

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1 because we chose it because the highway and the
2 pipeline were going to cross Donnelly River very
3 close together and this is why we set up this
4 the site before and that is something that should
5 be in our favour, that we had intended to do that.

6 Another point that I wanted
7 to make was that there is even another joker in the
8 pack that Mr. Scott has not mentioned, and that is
9 it is within the realm of possibility that the
10 Commissioner would recommend to the government
11 that the Interior Route would be chosen, in which case
12 the pipeline and the Dempster Highway would lie in
13 close proximity for a space, a certain distance, and
14 if on the other hand it is recommended that the
15 prime route be chosen, the Dempster Highway and the
16 prime route would be 100 to 200 miles apart.

17 Now, this makes an entirely
18 different assumption and so it just includes another
19 difficulty.

20 THE COMMISSIONER: And the
21 choice of that route, apart from whatever I might
22 recommend, would be in part up to the Americans, what
23 choice they made? They might choose the Interior
24 Route, for all we know.

25 Well, can we adjourn now?

26 MR. MARSHALL: I think, sir,
27 Mr. Hemstock has some comments on this point as well.
28 We left him out.

29 THE COMMISSIONER: Oh, sorry,
30 forgive me.

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1 WITNESS HEMSTOCK: Well, I am
2 not sure that the panel has really addressed the
3 question that Mr. Scott asked and it seems -- it is
4 my understanding that our -- or I should say our
5 studies have directed themselves to the baseline
6 that now exists and we have not addressed ourselves
7 any more than the panel has indicated to the things
8 which may happen in the future and the Arctic Gas
9 pipeline is not the first project in the Mackenzie,
10 if you like, in quotes, "corridor." The river has
11 been a corridor for decades. It was followed by the
12 winter road into Canol in the '40's, and that was
13 followed -- the establishment of a string of airfields
14 which are a communication link, that was followed
15 by the telephone line which has a cleared right-
16 of-way very much the same as the Arctic Gas pipeline
17 would have; and then the Government licenced a
18 regular operating winter road along the Mackenzie.

19 Now, the studies which we
20 have done have accepted those things as being
21 in place and we have -- our base line studies are
22 base line studies which take into account those
23 features. But we have not, what we find we can't
24 do, or find great difficulty in doing, is going
25 beyond that to project into the future what the total
26 impact of a highway, a gas line, and an oil line and
27 whatever else there might be, would be.

28 We have restricted ourselves then, certainly in the
29 main, to the impact of a gas pipeline on what now
30 exists.

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1 MR. SCOTT: Can I just
2 frustrate everybody by one more question. I take it,
3 Mr. Hemstock, that that means that you have assumed,
4 for example, people access by road as far as Fort
5 Simpson, because that exists at the date with which
6 we are concerned --

7 A Yes, that would be within
8 the baseline which we have looked at.

9 Q But not people access
10 as far as, let us say, Wrigley, because at the
11 time the work was done, that was not on the map,
12 or not built?

13 A No, I am not sure of
14 that --

15 Q Well --

16 A It is a dynamic thing,
17 and as the panel has indicated, we are doing studies
18 at Chick Lake because we thought the highway was
19 going to be there and we want to be able to monitor
20 it, but that now will not --

21 Q But generally speaking
22 in doing your studies you have assumed people access
23 by road as far as, let us say, Fort Simpson, because
24 at the relevant time there was a highway that people
25 could take that would lead them there, and you have
26 not considered what the future holds with respect
27 to that highway or anything else?

28 A Yes, and I think with
29 regard to the Dempster, we saw it as being completed
30 only to the stage it is now. The panel has expressed

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1 their concern about the impact of it when it is
2 completed, and there is an impact there, of course,
3 that there is already access to a portion of the
4 herd even though the line is dead ended.

5 Q Yes, but dealing
6 with the Dempster, you have assumed the access to the
7 point roughly where the highway now is.

8 A I think that is correct.

9 Q Mr. Jakimchuk,
10 did you --

11 WITNESS JAKIMCHUK: I didn't
12 -- those types of considerations didn't weigh very
13 heavily, Mr. Scott, when I was assessing the gas
14 pipeline, and I think the question you are probably
15 asking me is, what is going to happen to the
16 Porcupine caribou herd? And the answer that I am
17 giving you is, a gas pipeline is not significant,
18 but that highway is.

19 THE COMMISSIONER: Well, I
20 move we adjourn until 2 o'clock.

21 (PROCEEDINGS ADJOURNED TO 2 P.M.)
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(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

MR. BAYLY: Q Now, gentlemen,
I've been thinking along with Miss Allison about some
of the things we were discussing this morning and I
think some of the difficulty arises perhaps in my
use of the term "assumption", and we got onto the assumption
that Mr. Scott invited you to make, and what I'm
going to ask you now, Dr. Banfield, and the rest of the
panel as well, is to direct yourself to, what I'm going
to refer to the terms of reference within which you
worked, and to suggest to you that there are things
outside that term, that set of references that you did
not consider. Now, did you feel, Dr. Banfield, that
it was outside your terms of reference to consider the
possibility of American gas doing anything but come
across the Yukon? In other words, of it going through
Alaska.

WITNESS BANFIELD: Yes sir.

Q And you considered that
to be within your terms of reference?

A I believe you said
"outside".

Q Sorry, you considered that
to be outside your terms of reference.

A Yes sir.

Q Now, would that, in that
you're speaking for the whole panel, I take it. Is
there anyone who disagrees with that?

A No, I'm speaking for
myself.

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1

2

Q Could the other panel

3

members comment on that before we go on?

4

WITNESS JAKIMCHUK: That

5

statement is not quite true as far as I'm concerned

6

for our entire involvement with the Arctic Gas project

7

because we were asked to look at alternative routings

8

of transporting American gas at one point, to examine

9

that.

10

Q And did you make recommen-

11

dations at that point with regard to whether American

12

gas should be brought across the Yukon, or whether it

13

should be delivered by some other route or by some other

14

means?

15

A No, that was not within

16

our terms of reference.

17

Q And is there any other

18

member of the panel who was on at the stage Mr. Jakimchuk

19

was -- that considered bringing American gas out other

20

than across the Yukon. Dr. Gunn?

21

WITNESS McCART: Well, we were

22

all asked to consider various corridors as outlets for

23

American gas, and we did produce an alternative corri-

24

dors report in which we recommended that if only

25

American gas were being considered, and I pointed this

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out, I think, earlier, that we would prefer the Fairbanks

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corridor, if only American gas were under consideration.

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However, if the pipeline was to exploit both the American

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and Canadian sources of gas, then we would recommend

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the prime route.

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

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Q Any other panel members have a comment on this as being within their terms of reference. Dr. Gunn?

WITNESS GUNN: Mr. Bayly, I wasn't sure how you phrased the question to begin with. You said to bring American gas out by Alaska, is that what you said?

Q Yes, actually I put it a little more broadly than that, Dr. Gunn. Were you asked to consider not only other routes but other methods of removal of American gas other than bringing it by pipeline across the Yukon?

A I think that all the alternative corridors we considered across the Yukon in one form or another.

Q There was a time, was there, when you were discussing methods of taking out only American gas as opposed to American and Canadian gas through the same facility. Would that be correct, sir?

A No, I don't think so.
WITNESS BANFIELD: Mr. Bayly,

I tried to listen closely and get the precise meaning and I think I did. You mentioned crossing Yukon and I took that to include, of course, a possible Fairbanks or Fort Yukon routes to in fact cross the Yukon, and I may have spoken too briefly. If you were ruling out routes across the Yukon coast which might not be actually on land, so these are qualifications I'm making.

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Baily

1 Q Yes, and you have given
2 evidence on the suggestion you have made of an offshore
3 route. Now, with regard to oil spills, was the
4 question of oil spills outside your terms of reference,
5 and you may want to divide that into oil spills that
6 are the result of the storage of fuel for this project
7 and divide that away from oil spills that might be
8 caused by the rupture of an oil transportation line.

9 A Well, the latter was
10 certainly outside our terms of reference. The general
11 consideration of oil spills is within our terms of
12 reference, and having in mind the use of oil as an
13 energy source connected with a gas pipeline.

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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Q Would that be true of the
2 other panel members as well?

3 WITNESS GUNN: I would agree
4 with that.

5 Q Mr. Hemstock?

6 WITNESS HEMSTOCK: Yes.

7 Q Mr. McCart?

8 WITNESS MCCART: I am not
9 really sure what I am responding to, I was writing
10 some notes here.

11 Q I am trying to go through
12 with each of you now, rather than trying to recap
13 them for you and Mr. Marshall and have you comment
14 on them at the end because we had some trouble with
15 that this morning --

16 A You are asking whether
17 we should consider oil spills --

18 Q Whether it was within
19 your terms of reference to consider oil spills firstly
20 being ancilliary impacts of the construction of this
21 project.

22 A Are you talking about
23 lubricating oils and fuels as opposed to crude oil
24 spills which are certainly not going to be involved in
25 this particular project?

26 Q I had asked Dr. Ban-
27 field about, to comment on those as separate matters
28 and one may be within the terms of reference, the
29 other may not. Did you comment on the spills
30 of diesel fuel lubricants, gasoline, etc.?

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 A Yes, we made recommenda-
2 tions that every effort should be made to ensure that
3 the storage, transfer, etc., of these materials could
4 be conducted without any damaging effects from
5 spills.

6 Q But the spills of
7 crude oil were beyond your terms of reference?

8 A The spills of crude
9 oil we don't need consider, no.

10 Q Mr. Jakimchuk?

11 WITNESS JAKIMCHUK: That is
12 essentially . the same, we considered lubricants
13 and so on associated with the project to be within
14 the terms of reference, but not crude oil.

15 Q Dr. McCart, just before
16 we leave the question of oils, and it is not so
17 much -- or sorry, of fuels, lubricants, etc., when you
18 were discussing these in terms of fish, did you
19 discuss whether or not fuel spills might occur that
20 might have little or no detrimental effect on fish
21 but might affect the taste of that fish?

22 WITNESS MCCART: I think
23 I was asked this question before and the answer is
24 no.

25 Q No that you didn't?

26 A No, we did not consider
27 the possible effect on the taste of fish.

28 Q Yes. Now, back to the
29 terms of reference in which you worked, I take it
30 from this morning's discussion that with regard to the

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 highways, both present and future, that it was not
2 within your terms of reference to discuss the
3 environmental impacts of those?

4 WITNESS BANFIELD: Our
5 terms of reference where generalized, if you are
6 speaking to me specifically, I had no written
7 terms of reference, and so that my -- what I could
8 do is really quite freewheeling authority, was to
9 comment generally and so we have, from time to time,
10 considered the environmental impact of the highways
11 and the combined impact of a highway and a proposed
12 gas pipeline, but we haven't got very far into
13 an answer.

14 Q And then that is what
15 was referred to this morning as being part of your
16 base line data. I think that Mr. Hemstock used that
17 phrase.

18 A Yes, what we -- the
19 baseline data is an examination of the land and the
20 situation before the project, the project being
21 a gas pipeline. So, in the case where there were
22 C.N.T. lines and there was barge traffic on the
23 Mackenzie and a winter road and sections of highway,
24 they were already -- their influence was already
25 felt in the baseline studies that we were studying.

26 Q Yes. Now, I understand
27 that as far as we went this morning with regard to
28 highways. There appears to be some exception to those
29 portions of highway not yet completed and therefore,
30 not yet in use, and perhaps either you or Mr. Hemstock

Banfield, Tunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 would care to respond to this.

2 Mr. O'Rourke, when he was
3 discussing logistics, discussed the possibility of
4 using the Dempster Highway to bring materials in,
5 if materials came in through the Yukon. I take
6 it to that extent anyway, the engineers had assumed
7 the possible or even eventual existence of this highway
8 as a facility that they could perhaps employ to bring
9 in materials.

10 A I think Mr. Hemstock
11 could better answer that.

12 Q Am I right in assuming
13 that within the terms of reference at least of those
14 things that Mr. O'Rourke discussed, the Dempster
15 Highway was a facility he felt could be used to
16 assist the logistics of some of the supply for this
17 line?

18 WITNESS HEMSTOCK: Yes.
19 Our logistics people have considered that by the
20 time the project is ready to go that the Dempster
21 Highway would be in place.

22 Q And I think that ano-
23 ther assumption was made, that the Mackenzie Highway
24 would be completed to a certain point, although it
25 wasn't a requirement, because you had the alternate
26 of the river system?

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 A Yes, as I recall, the basis
2 was that the Mackenzie Highway would be completed to
3 Fort Good Hope, by the time it was required for the
4 project.

5 Q And so when we're looking
6 at base lines, we're looking at what exists now; but when
7 we're looking at assumptions that at least the logistics
8 people made, they included things that are not yet
9 completed.

10 A That's correct.

11 Q And were the highways
12 that are not yet completed, that is the Mackenzie
13 Highway to Fort Good Hope and the Dempster Highway,
14 considered completed as part of the baseline data from
15 which the environmentalists on this panel worked?
16 Dr. Banfield?

17 WITNESS BANFIELD: I have not
18 been really involved in the first person in these
19 studies. I think perhaps the other environmentalists
20 could better answer that question.

21 Q Dr. Gunn?

22 WITNESS GUNN: We considered
23 our terms of reference to be conditions as they existed
24 and exist at the time of our baseline studies.
25 In other words, we did not consider the detailed impact
26 of future construction of highways.

27 Q Yes. Dr. McCart?

28 WITNESS MCCART: I'd point out
29 that we were all aware of the pipeline guidelines and
30 we all know and we have known for several years that

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 they did include this requirem ent that some considera-
2 tion be given to the potential effects of other develop-
3 ments, so that I have some general feeling for what I
4 think the effect of the development of a highway might
5 have in comparison with that of a gas pipeline. Again
6 I want to make the point, we don't have terms of
7 reference that have been put down on paper, other than a
8 very general one that we are supposed to consider the
9 impact of a gas pipeline. But again we are aware of the
10 fact that the guidelines require this. I have some
11 general knowledge of this. I understand that we are
12 supposed to have. Again I have the same understanding that
13 Dr. Banfield had that we would be considering this
14 problem under a separate panel, or at another time
15 during the course of this Inquiry, and we are prepared
16 to do that.

17 Q All right, you will come
18 back and consider this for us at another time, is
19 that correct?

20 A Well, that was my
21 understanding, that some arrangement had been made to
22 this effect. Am I correct in that?

23 Q I'll leave that to Mr.
24 Marshall.

25 MR. MARSHALL: Well, a large
26 part of it is a matter that has to be discussed with
27 Mr. Scott and other counsel as to what is to be done
28 and when it will be done. I don't think we've had a
29 chance to consider that at a meeting of counsel, and
30 I haven't made any firm decisions about the numbers of

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witnesses and so on.

MR. SCOTT: I haven't set down any time for considering the corridor concept per se, though we have heard evidence, as you recall, at Whitehorse related to alternative corridors, a slightly different subject.

THE COMMISSIONER: And we've heard from Commissioner Parker of Alaska, his views on the concept of laying down corridors. We haven't yet heard evidence regarding the impact of future developments within any corridor, if one is --

MR. SCOTT: It's perhaps a little early to be inviting witnesses to that feast, but --

THE COMMISSIONER: Well, they're anxious to come.

MR. SCOTT: Well, I know.

THE COMMISSIONER: You can tell that.

MR. SCOTT: But we have that very much in mind.

MR. BAYLY: Well, just to make sure that this is on the menu, Mr. Commissioner, I don't expect Dr. McCart to give us an answer now if he doesn't have one, but it appears to be something that Dr. Gunn realized, whether he was considering or not, and it's one that Mr. Hemstock has admitted the logistics people considered.

THE COMMISSIONER: Well, let me tell you where I think we are. The -- it seems to

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McCart, Jakimchuk
Cross-Exam by Bayly

1
2 me that at some stage counsel may want to develop --
3 they may want to bring forward evidence regarding the
4 full notion of a corridor. Mr. Parker, the Commissioner
5 of Highways in Alaska, has already given us his views
6 on what a corridor concept is all about. It shouldn't
7 take very long to hear that evidence and it seems to me
8 it needn't prolong this Inquiry unduly. But what these
9 witnesses are talking about, as I understand them, is
10 not their coming back to tell us what they think of a
11 corridor concept, but to give us their views, in a
12 limited way, limited because they've studied the gas
13 pipeline proposal in detail; they haven't examined these
14 other things in detail. But to come back and tell us
15 what they think the impact of an oil pipeline would be,
16 and perhaps to discuss other ^{proposed} developments within
17 the Mackenzie Valley corridor.

18 Now they can't, as I say,
19 go into the enormous detail they've been good enough
20 to provide us with regard to the gas pipeline, but
21 that's what I understand they would come back to do.
22 That's what we're talking about surely, isn't it?

23 MR. BAYLY: I think that's
24 correct, sir, and if I could just ask the question to
25 Mr. Jakimchuk to find out what the state of the under-
26 standing of the terms of reference and whether this
27 was a part of his understanding at the time that he did
28 his studies, then we would have completed that aspect
29 as far as we can go today.

30 WITNESS JAKIMCHUK: The

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Cross-Exam by Bayly

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2 baseline studies were directed towards things as they
3 were at the time we conducted the studies. We did not
4 specifically endeavor to anticipate in any detail these--
5 some of these other developments and orient our studies
6 towards theoretical development.

7 Q Yes. Now, with regard
8 to terms of reference, and I realize that these aren't
9 things that are necessarily written down, Dr. Banfield
10 and Dr. McCart have told us that; but how did your
11 terms of reference get formed? Were they things that
12 were given to you by the applicant, or did you help
13 develop them yourselves?

14 WITNESS BANFIELD: This is
15 probably a very startling answer, Mr. Bayly. My re-
16 lationship with the president of N.E.S. is based solely
17 on a handshake, and the understanding that when I
18 lost confidence in the project I would no longer respon-
19 to telephone calls; and on the other hand, when he
20 lost confidence in my advice, he would no longer make
21 the telephone calls, and that is the situation that
22 I am in.

23 Q All right now, Dr.
24 Banfield, I understand that part and I assume that
25 you're still phoning each other; but what I want to
26 know about is, from the beginning of the process I
27 assume that you went in and shook hands with the head
28 of N.E.S. and that he said, "We need some work done
29 on environmental impact assessments," and you said
30 something like, "What do you want done?"

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Cross-Exam by Bayly

1 And either he said, "We want
2 A, B, and C done," or he asked you what you thought
3 should be done. You see what I mean by that process?

4 A I think I covered it in
5 my direct testimony, at least the first part, that what
6 he asked me to do was to have an overview in connection
7 with the mammal research program that Renewable
8 Resources would be undertaking for N.E.S. on a consult-
9 ing basis, and that I was to be an independent reviewer
10 of their program from the point of view of suggesting
11 research projects, reviewing their reports, suggesting
12 methodology, and keeping in constant consultation with
13 Mr. Jakimchuk and also his field personnel. But after
14 a couple of years my role gradually changed. I think it
15 was particularly after that environmental assessment
16 review, and at that time I was approached by senior
17 management of CAGSL to ask if I would take a broader
18 look at the whole environmental program and impact
19 with a view of being able to provide an overview. As
20 you were discussing, more an inter-disciplinary
21 approach rather than a single disciplinary approach
22 to the program.
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Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 Q So, would it be fair to
2 say that you/ were
3 with N.E.S. at least partly, to tell
4 them whether the environmentalists, in your opinion
5 were on the right track and not dealing with things
6 that were getting too far away from the project to be
7 of any use in the environmental impact assessment
8 process?

9 A Yes, sir. That was a
10 question that was addressed to me on several occasions.

11 Q All right. Dr. Gunn?

12 WITNESS GUNN: Mr. Bayly,
13 on page 31 of my direct testimony I have outlined
14 under three points what we consider our assignment
15 to be and we also consider from that, took these to
16 be our terms of reference, which have, in the course
17 of time, become more specific perhaps, but basically
18 we consider these to be our terms of reference.

19 Q Were these terms of
20 reference ones that you suggested to N.E.S. that they
21 should give you or did they come up with these on
22 their own?

23 A I think we arrived at
24 this through mutual discussion and agreement.

25 Q All right. Now, Mr.
26 Hemstock, how were your terms of reference arrived
27 at?

28 WITNESS HEMSTOCK: The
29 terms of reference for what?

30 Q Your terms --

THE COMMISSIONER: I think

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Cross-Exam by Bayly

1 Mr. Hemstock has the responsibility for the whole
2 thing. He is an employee, as I understand it, of
3 Arctic Gas in a different position from these other
4 gentlemen, who have their areas of expertise.
5 Forgive me for saying so, but presumably Mr.
6 Hemstock does what they tell him. Those are
7 his terms of reference. I mean, I am not seeking to
8 diminish his standing in the company, but where is this
9 getting us, for Mr. Hemstock to give us his terms of
10 reference? I can see the usefulness of eliciting
11 that from these other people, but what are his terms
12 of reference, to conduct these environmental impact
13 studies, to retain these consultants and to work
14 with Mr. Marshall to assemble the material, the
15 witnesses and get them up here. What good does it
16 do me to know whether that was arrived at by mutual
17 discussion or by their laying it down or Mr. Hemstock
18 laying it down?

19 MR. BAYLY: Well, if that
20 is the understanding, if that is correct, then I am
21 content with that, Mr. Commissioner, as far as
22 Mr. Hemstock is concerned, I agree with you that it
23 is more important that we get this from the other
24 members of the panel, because, after all, they were
25 the experts that were looked to, to help define, as I
26 understand it, what was to be done.

27 THE COMMISSIONER: Well, do
28 you want to comment on this matter, Mr. Hemstock?

29 A I think that you
30 have put it in proper perspective. I am an employee

1 of Arctic Gas. I could refer you to the introduction
2 of 14D.N. where we outline the objectives, the
3 scope, and there is a brief section on impact assess -
4 ment and the -- perhaps the terms of reference are
5 given there on page 5. Now, those are the general
6 objectives and background which we used in developing
7 these studies. The consultants we used, though, I
8 think as indicated, have individual terms of reference
9 which would -- which I was responsible for seeing
10 that would lead us toward the objectives which are
11 outlined in 14 D.

12 MR. BAYLY: All right, so
13 you would have been the member of the company staff
14 that would have helped them to understand what the
15 company was looking for and also to elicit from them
16 what should be done?

17 A That is correct, except
18 that I should point out that I did not join the
19 project until some of these studies had already
20 been undertaken --

21 Q Yes, well, then you --

22 A And Dr. Banfield and the
23 rest were all well on their way and had gotten these
24 developed before I arrived on the scene.

25 Q You had a predecessor,
26 I am assuming that did this before --

27 A Several, yes.

28 Q Yes. Dr. McCart?

29 WITNESS MACCART: We don't
30 have, as I pointed out, a written set of terms of

Banfield, Gunn, Hemstock
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Cross-Exam by Bayly

1 reference --

2 Q I understand that.

3 A Okay. We don't even
4 have a contract with either Northern Engineering
5 Services, or Canadian Arctic Gas, so that very little
6 of this sort of thing is on paper. As far as I am
7 concerned, my general terms of reference was to advise
8 both Northern Engineering and Canadian Arctic Gas as
9 to how they could build a gas pipeline without doing
10 any long term damage to aquatic environments or
11 aquatic habitats or fish populations or whatever along
12 the route of that pipeline. That was the general
13 term of reference.

14 Now, in carrying that out,
15 of course, we were told, we would like you to study this,
16 or things of that nature, but these are not. We had
17 nothing more specific than that very general term of
18 reference, if you wish.

19 Q Now, that sounds like
20 a term of reference that would have emanated from the
21 applicant, in other words, tell us how to build the
22 gas pipeline --

23 A No, as a matter of fact,
24 that is the term of reference that emanated from me.
25 That is the understanding under which I took to do
26 this.

27 Q All right. And then
28 you would go from that to say within those terms of
29 reference I think we should do A, B, C, and D to make
30 sure --

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McCart, Jakimchuk
Cross-Exam by Bayly

1 A Well, I might say,
2 that look, if we are going to build this pipeline without
3 doing any serious damage to fish populations we have
4 got to do this, this, this and this. So I go to
5 them and say, "Look, I feel that these are important
6 things, are you going to finance this particular
7 project?"

8 Q Yes. All right.
9 Mr. Jakimchuk?

10 WITNESS JAKIMCHUK: We
11 started out by making proposals as to what we thought
12 should be done in order to assess the impact of this
13 pipeline. That was the way we commenced initially .
14 We suggested areas and lines of research, baseline
15 research. This evolved over the years to the point
16 where we were no longer dealing with what might
17 be a problem, but how do you deal with certain types
18 of problems, and on an annual basis we would submit
19 project outlines and proposals to undertake certain
20 areas of work.

21 That evolved even further
22 to the point where we were given assignments by the
23 client when he became aware of a particular type of a
24 problem, so that is the way it has gone from the out-
25 set, but at the outset I would say that we suggested
26 to a large extent what should be done.

27 WITNESS BANFIELD: Mr. Bayly,
28 there is one other point that I would like to put
29 on record, perhaps a lighter vein. I was asked in
30 another court if I knew why I was so employed and I

Banfield, Gunn, Hemstock
McCart, Jakimchuk
Cross-Exam by Bayly

1 had some difficulty answering the question, and Mr.
2 Dau was in the audience and in a very loud voice
3 he let it be known that he couldn't find anybody uder
4 the "A's".

5 (LAUGHTER)

6 THE COMMISSIONER: I have had the
7 same trouble.

8 (LAUGHTER)

9 MR. SCOTT: It may be that
10 COPE had the same problem.

11
12 MR. BAYLY :I think after that
13 I will commence onto something else. I think that
14 effectively disposes of that topic.

15 Q Before I leave there
16 are a couple of tag ends of things that I would like
17 to pick up, if I could. One of these is on the
18 matter of aircraft disturbance and we have gone over
19 this to a certain extent before, but perhaps I could
20 ask you to comment, Dr. Gunn, on whether you had
21 taken into account the fact that the ceilings that
22 you recommend for flights for the applicant may, in
23 times that are important both for nesting and for
24 staging, be difficult to maintain if flights are
25 to be maintained at all, that is, in the spring and
26 the fall, maintaining a ceiling of 2000 feet on the
27 North Slope may be very difficult for the safety of
28 the flight, it may involve cancelation of flights.
29
30

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Cross-Exam by Bayly

1 WITNESS GUNN: Yes, we've
2 taken that into account.

3 Q And Mr. Hemstock, the
4 applicant no doubt realizes this as well, having
5 kept an eye on/^{weather} records, etc. , and is it proposed
6 that a contingency plan be developed, or is there one
7 developed for having flights delayed during this period
8 if there is any question about them not being able to
9 maintain the 2,000-foot ceiling?

10 WITNESS HEMSTOCK: We have
11 certainly considered the weather factor and at many
12 times that ceiling is not available. But Dr. Gunn, I
13 think, mentioned in his testimony there are other
14 alternatives which can be looked at as well as the
15 cancellation of flight, and that is a re-routing. So
16 that's another option that we'd obviously be looking at
17 and finally, of course, the evaluation of the -- really
18 has to be done on the site, to determine if a flight at
19 say 1,000 or 1,500 feet is going to in fact have any
20 serious impact on the wildlife. There are critical
21 times of the year when this would have to be enforced
22 to 2,000. There are other times when/^{probably} it is unimportant.

23 Q You anticipate the possi-
24 bility of these regulations being unmaintainable in
25 emergency situations, I take it, as well, if the ceiling
26 suddenly drops or if the fog rolls in, things may happen
27 to preserve human safety that may come in conflict with
28 staging geese, for example?

29 A Yes, that's right. It's
a kind of regulation that is already being applied and

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Cross-Exam by Bayly

1 has been applied for several months, perhaps a few
2 years, to the operations of the exploration companies
3 in the delta area.

4 Q All right.

5 A And I'm not aware that
6 it has caused any problem, although I know they have
7 had these same kind of difficulties with regard to
8 weather.

9 Q And you're aware too of
10 the impossibility of policing all flights. It depends
11 on company personnel, say reporting the pilot if
12 he breaks these regulations while they're on the
13 aircraft.

14 A We have required reports
15 from the air crew in the event that the regulations
16 could not be followed.

17 WITNESS GUNN: Mr. Bayly, could
18 I add something to that?

19 Q Yes.

20 A One of the other alterna-
21 tives is that aircraft fly instrument flight rules
22 instead of visual flight rules, and if they have the
23 equipment available to do that it will be possible to
24 fly above the ceiling.

25 Q Right. Now, as I under-
26 stand one of the problems that has already taken place
27 in the delta with these operations is that on very few
28 occasions, if any occasions, have operations been shut
29 down because of the ceiling, because there isn't enough
30 ceiling for an airplane to maintain these heights. Has

1 that been your experience, Mr. Hemstock, or do you
2 know anything about that subject?

3 WITNESS HEMSTOCK: I don't have
4 any data.

Q The other problem may arise with regard to helicopters, as I understand. Most of them or perhaps all of them fly by visual flight rules rather than instrument flight rules, is that your understanding, Dr. Gunn?

10 WITNESS GUNN: Yes.

11 Q So that particular possi-
12 bility might not apply except to fixed wings.

13 A Might not.

Q Now, with regard to methanol and perhaps Dr. McCart, you could respond to this question. It's been proposed by the applicant to dispose of methanol onto ice. You've given evidence under cross-examination that you might prefer to see it metered out into the flow of say the Mackenzie River so that you could keep tight controls on the amount that is being diluted into the water course on a more accurate -- in a more accurate way.

23 WITNESS McCART: Yes.

24 Q Have you considered --
25 and perhaps Mr. Hemstock may want to comment on this
26 too -- have you considered taking the methanol out?
27 Does it have to go into the river and therefore into the
28 Beaufort Sea?

29 A Well, I could be corrected
30 on this but my understanding is that it will be, in many

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Cross-Exam by Bayly

1 instances at least there will be a distillation process,
2 and what will be in fact pumped out onto the ice would
3 be the residual alcohol that was left after the
4 distillation process. In other words, most of it will,
5 in fact, be distilled out and either burned
6 on the slope or removed in some other way -- not on
7 the slope but on the site.

8 Q All right, do you feel
9 then that it is not possible to remove it all because
10 certainly one of the concerns of my clients has been
11 that why should this be dump_ed into the water at all?
12 If it's been brought in, surely it could be brought out.

13 A Well, I don't have any
14 knowledge of the technical aspects of the distillation
15 process, but apparently for one reason or another it's
16 not either economically or technically feasible to dis-
17 till the entire quantity.

18 Q I take it what might be
19 possible would be to take the remains, and rather than
20 putting it into the river, putting it into empty barrels
21 and shipping it south.

22 A A very large quantity, in
23 any case I don't know that we'd want it in the south
24 either.

25 Q Well, I'm not suggesting
26 that you would want it in the south.

27 A It's a problem with
28 incremental impact.

29 Q Beg your pardon?

30 A I say a problem with

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1 incremental impact in the south has been much abused
2 already.

3 Q But that really isn't --
4 you don't mean that as an excuse for putting it in the
5 Beaufort Sea.

6 A No, actually methanol is
7 rather readily broken down by a variety of micro-
8 organisms apparently and I don't think it's going to
9 have any persistent effect wherever it's placed. Most
10 of it will be incinerated, distilled and incinerated,
11 or otherwise got rid of. I don't think that we have
12 to worry about methanol persisting in the environment.
13 There is a problem, we have to ensure that we don't
14 get a sufficient concentration in the vicinity of some
15 critical area to have an immediate short-term effect
16 on some population. We certainly have to ensure that
17 that doesn't happen. We have done a variety of experi-
18 ments to find out what the concentrations, for instance,
19 that eggs can tolerate, fish can tolerate. We've
20 looked at eggs, we are now looking at the effect on
21 fertilization success and those experiments -- we should
22 have the results of those within a month or so.
23 So we're very aware of the problem.

24 Q Now, Mr. Jakimchuk, I've
25 given you a photo copy of an article, a reprint from
26 "The Scientific Management of Animal & Plant Communities
27 for Conservation." The 11th Symposium of the British
28 Ecological Society, University of East Anglia, Norwich,
29 7th to 9th of July, 1970, edited by E. Duffey & A.S.
30 Watt, and do you have a copy of that article by Dr.

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1

2 Geist, I take it.

3

4 WITNESS JAKIMCHUK: I have three
5 pages with just Geist's name on it. I don't have the
6 rest of it.

7

Q Yes.

8

A No date or origin.

9

10 Q The three pages are the
11 ones that I have given you and I wouldn't be referring
12 to anything apart from those. Now, at page 418 of this
13 reprint Dr. Geist talks about disturbance as it
14 relates, in this case to reindeer as opposed to caribou.
15 Now you have given evidence that reindeer and caribou
16 are similar in many ways. I believe you did that when
17 we were talking about the herd that you mentioned from
18 Siberia.

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1 WITNESS JAKIMCHUK: They are
2 very similar. There are some differences in them,
3 but let me make one distinguishing clarification. There
4 are domesticated reindeer in Siberia and there are
5 freeranging, wild reindeer which are quite comparable
6 to caribou. The domestic reindeer are in constant
7 close contact with man.

8 Q Well, this article is
9 entitled, "The Behavioural Approach to the Management
10 of Wild Ungulates", and without knowing for certain,
11 I am assuming that Dr. Geist was referring to the
12 wild ones as opposed to the tame reindeer?

13 A Well, he is referring to
14 Zhigunov's paper here and that monograph was entirely
15 devoted to reindeer husbandry and not wild, freeranging
16 reindeer.

17 Q Well, then I would invite
18 you to comment as we go along through the points and
19 that is to tell me whether you think these things
20 only apply to domesticated reindeer as opposed to
21 wild ones?

22 MR. MARSHALL: Sir, I hesitate
23 to interject, mightn't it be useful if Mr. Jakimchuk
24 could look at the entire article and it might save
25 some time. He can form a judgment as to what it
26 is Dr. Geist was dealing with. There seems to be some
27 confusion as to whether it is domesticated or
28 wild reindeer.

29 A Well, I don't think --
30 it doesn't present that much of a problem to me, but all

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1 I want to make clear is that you referred me to page
2 418, all of the points of which are reference to this
3 particular paper, this particular monograph which
4 deals not with wild populations. If we understand that
5 that is fine.

6 MR. BAYLY: All right, and I
7 am content with that, but I would point out to Mr.
8 Marshall, Mr. Commissioner, that we offered the entire
9 article previously to Mr. Jakimchuk to read and
10 -- but said that we would only discuss these pages and
11 if he feels --

12 THE COMMISSIONER: Well,
13 let's go ahead and discuss them and if we run into
14 difficulty we will have to --

15 MR. BAYLY: All right.
16 You are happy with that then, Mr. Jakimchuk, that is
17 what I am trying to --

18 A Well, you didn't
19 offer me the entire article.

20 MR. SCOTT: Whether he is
21 happy or not I am sure that we can proceed with it.

22 A I am ready to proceed.

23 MR. BAYLY: Okay, let's
24 go.

25 Q Now, at the top of
26 page 4018 Dr. Geist sets out a series of things that
27 we ought to know and I will review these for the sake
28 of the record. We need to know, one, which factors
29 cause disturbance and the extent of physiological
30 upset caused by each factor. Do you agree with that

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1 statement as it relates not only to tame reindeer, but
2 also to wild caribou?

3 MR. MARSHALL:

4 I am sorry, we need to
5 know it for what purpose? Academic interest or
6 in order to assess the impact that a proposal to build
7 a pipeline might have?

8 MR. BAYLY: When we are
9 discussing disturbance of animals, Mr. Jakimchuk, no
10 matter what the cause, is it true that we must know
11 which factors caused disturbance and the extent of
12 physiological upset caused by each factor?

13 A It would be nice to
14 know that. It is not imperative that that be known
15 in order to avoid serious disturbance of wild populations.
16 There are other ways of avoiding that disturbance.

17 Q All right, but assuming
18 that there is disturbance that you want to be able
19 to chart the extent of, or the seriousness of, this
20 would be a useful thing to know, you are saying?

21 A It would be desirable
22 to have definitive answers to the points that Dr.
23 Geist lists, yes, just in the same fashion as it would
24 be desirable to know the cause of the common cold,
25 but it is not necessary for the treatment of the
26 problem.

27 Q But we are not putting
28 this into the same category as the cause of the
29 common cold, surely?

30 A Well, I said it would
31 be desirable to know these things.

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1 Q Mr. Carter seems to be
2 upset at the rate of progress, Mr. Commissioner. I am
3 doing my best.

4 The second thing that he
5 says is that the physiological effects of prolonged
6 excitement on development, growth, mortality and
7 reproductive performance of individuals with particu-
8 lar emphasis on the developing embryo are important
9 to know, and can we relate that, first of all, to
10 caribou as they are either on or approaching the
11 calving grounds, as being an important thing
12 to consider?

13 A It is one of the
14 things that you would want to avoid happening to
15 caribou. In other words, if there were physiological
16 effects that did have an effect on reproductive
17 performance, it is one of the things that you would
18 definitely want to avoid.

19 Q All right, and one
20 of the reasons for that, I suggest to you, is because
21 caribou are one of those species that can resorb
22 the fetus under stress?

23 A Well, I think that
24 would apply to a very wide range of species under
25 very extreme stress.

26 Q All right, but you are
27 not going to disturb -- you don't potentially
28 disturb all those species if there is a potential
29 disturbance that we are talking about right now,
30 it's on the Porcupine caribou herd?

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1 A Well, if you are talking
2 about the Porcupine caribou herd, that they are
3 capable of resorption of embryos.

4 Q Yes, and that would
5 cause, if there were disturbance that caused the
6 stresses, that led to resorption of the fetus that
7 would result in fewer calves being born per 100
8 cows?

9 A If that were to
10 occur.

11 Q Yes, it is a difficult
12 thing to assess because you don't see a dead calf
13 and you don't see a cow dying in labour?

14 A Well, you see very few
15 dead fetuses around. I think the important point
16 is that we have -- we may not have the exact path-
17 ological evidence of some of the things, but there
18 are other measures, some of which are indirect, such
19 as the calving productivity in any given year that
20 gives insight into the range of tolerance of these
21 animals.

22 Now, the Porcupine herd,
23 large numbers pass Old Crow, they are pursued, they
24 are shot, large numbers pass up the Richardson
25 Mountains and people from McPherson and Aklavik
26 go out and they are pursued, they are subject to
27 stress and some pretty traumatic stress at times --

28 Q I am not suggesting --

29 A Okay, so I am saying
30 that the range of sensitivity that would lead to

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1 resorption, clearly, there is a fairly wide range of
2 tolerance within this particular species, inas much
3 as they, you know, they don't resorb immediately,
4 that they encounter some type of disturbance.

5 Q All right, do you
6 know whether or not these other traumas cause
7 resorption if they are being shot at near McPherson
8 or Aklavik, for example?

9 A I don't know that, but
10 I have -- I am not aware, and I don't see a reference
11 here that documents resorption as a result of
12 disturbance. Most of the literature that I am
13 familiar with on ungulates, relate to resorption
14 as a result of severe winter stress owing to
15 poor nutrition of the female, whether it be a deer
16 or a moose or so on.

17 Q All right, that is a
18 cause. You don't know whether that is the only
19 cause, is that what you are saying to me?

20 A Yes.

21 Q All right, and I am
22 not trying to suggest that the only traumatic experience
23 a member of the Porcupine caribou herd could possibly
24 encounter is the pipeline. But I am suggesting that
25 it may be one. You have suggested a number of
26 others. It is like the siltation problem with fish
27 that Dr. McCart agreed, natural siltation may not be
28 good for fish, it may kill them. Increased siltation
29 may kill more of them, and this may --

30 WITNESS MCCART: Eggs, pos-

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Cross-Exam by bayly

1 sibly.

2 Q This may be an additional
3 problem if you disturb them after thay have already
4 been disturbed, various things may happen, do you
5 agree?

6 WITNESS JAKIMCHUK: All
7 kinds of things can happen in anatural population,
8 yes.

9 Q Now, the other things
10 that are mentioned by Dr. Geist are increase in
11 accidents and death caused by confused running and
12 exertion during flight. Would you agree that those
13 are concerns of disturbance? That is number three.

14 A That is a concern if
15 a disturbance were to create -- let me preface my remarks
16 to all of these by saying that if a disturbance were
17 to create those conditions,an increase in accidents
18 and deaths caused by confused running, then it is a
19 concern.
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Cross-Exam by Bayly

1 Q What I'm doing, Mr.
2 Jakimchuk, is I'm asking you to take a step beyond
3 those things that you have agreed this morning that
4 you assumed, that there will be no/^{or}minimal disturbance.
5 I'm taking a step beyond that and I know this is ground
6 that involves making some hypotheses or responding to
7 scenarios, and it becomes more difficult because you
8 don't have certain data. Now, another possible problem,
9 if we go to the step of assuming that a disturbance
10 may result is that there may be a voluntary withdrawal
11 from available habitat and the consequent alteration of
12 the species, ecology, and its effect on the reproductive
13 performance and the individual growth. Would you
14 agree that that statement could apply to the Porcupine
15 caribou herd or a portion of it if it were disturbed,
16 say on its way to the calving ground?

17 A If it were seriously
18 disturbed, that statement could apply.

19 Q Now, some of these things
20 appear to have been documented, and the next paragraph
21 goes into what is known of the effects of disturbance
22 is disquieting.

23 "Excitation is costly because it elevates
24 metabolism,"

25 and I gather a man named Graham document_ed that in a
26 report in 1962. Would you agree with that statement?

27 A I don't like taking
28 statements out of context, and as a matter of fact this
29 paper tends to take them out of context as well. If
30 you carry on with that statement, it says:

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1 "It elevates metabolism."

2 Well, there are a number of things that elevate metabol-
3 ism -- cold, heat -- and then it goes on to say:

4 "Competing directly with energy otherwise
5 available for reproduction and growth."

6 Well, reproduction and growth is not the only purpose
7 of transfer of energy within an organism. Excitation is
8 not necessarily a bad thing. Caribou use excitation quite
9 effectively in escaping from wolves, for example. So
10 you see, taking these out of context makes it very
11 difficult for me to agree with him in their entirety.

12 Q All right, well I'm not
13 asking you to agree with them in their entirety, and
14 I think it's legitimate for you to respond the way you
15 have done, that this statement can't be taken this
16 way without assessing --

17 A There are always other
18 factors.

19 Q Yes. Now, he goes on a
20 little later, and maybe this is another statement you
21 may have trouble with in the context it's in, that:

22 "Disturbances cause loss in body weight,
23 weaken the animals, and increase susceptibility
24 to diseases."

25 Now, again you -- I understand that doesn't happen in
26 all cases but it is a possible consequence of disturbance.

27 A It's a possible consequence
28 of disturbance, but disturbance per se does not neces-
29 sarily cause those things. Stress causes those
30 things.

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1 Q All right, I agree with
2 that.

3 A And can cause those things
4 in domestic animals as well as wild ones.

5 Q And here we're discussing
6 domestic animals in this particular portion of this
7 paper, as you understand.

8 A Semi-domesticated.
9 But by and large I think that's a fair statement.

10 Q And is it possible as well
11 that in the case of caribou in the Porcupine caribou
12 herd that disturbance may cause desertion or trampling
13 of newborn fawns, or the displacement of the fetus
14 at calving time?

15 A Where is that statement?

16 Q That's down below the
17 resorption of the embryos, which we have already
18 discussed. It's about ten lines down.

19 A Yes, I've got it. I'm
20 just thinking about it.

21 Q All right.

22 A You know, that's not
23 very well documented, even in Zhigunov's monograph;
24 but it could, yes. You know, I'm sure that there are
25 disturbances that could cause trampling of newborn
26 fawns and displacement of fetus.

27 Q All right, when you say
28 it isn't very well documented, would it be fair to call
29 that what I think is sometimes referred to as a data
30 gap, something we don't know very much about?

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McCart, Jakimchuk
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1 A I think -- yes, I think
2 that's what Geist is talking about there, because he
3 uses the word "may" quite a bit.

4 Q Yes. Now, he goes on a
5 little farther to say:

6 "At certain critical times of their annual
7 cycle, reindeer are particularly susceptible
8 to damage by disturbance such as during late
9 pregnancy and calving, during the fly season,
10 and during severely cold weather in winter."
11 Now, would you say that what you have found out from
12 your studies supports that, or that there isn't enough
13 data to say that these things are necessarily true?
14 Or neither?

15 A Well, the thing is -- the
16 reason I have to think so long on these, is when you
17 say "disturbance" I'm not sure what kind of disturbance
18 you're referring to.

19 Q All right, well let's not
20 go into all the kinds of disturbance.

21 A O.K., caribou are suscep-
22 tible to disturbance at all times of the year. There
23 are some times, and Dr. Geist has identified some of
24 these, in which the implications are more serious, and
25 there are some times when they appear to be more sensi-
26 tive to disturbance. For example, aircraft disturbance
27 large groups of caribou during the calving and post-
28 calving period appear to be more sensitive to caribou
29 than at other times of the year, yes.

30 Q Now, in the last paragraph

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1 on that page Dr. Geist makes the following statement:

2 "The most damaging effect of frequent disturbance
3 could be decrease in the birth rate of the
4 reindeer calves and hence their viability
5 leading to lower reproductive performance of
6 the population."

7 Now, he's put that on a "could" basis and would what
8 you have observed about them bear this out as a thesis
9 that shows a strong possibility or probability?

10 A It's a possibility that
11 I would, with the provisos that if frequent disturbance
12 did take place and if it involved the whole population,
13 yes.

14 WITNESS BANFIELD: Mr. Commis-
15 sioner, I'd like to participate in this debate if you
16 permit. I did not know the quotation but I've been
17 concerned about the points that have been raised, and
18 I'm fairly knowledgeable about caribou myself, sir, and
19 I feel that a couple of points have been over-emphasized
20 in this document and also in various appraisals I've
21 seen. One is the problem of the importance of the nursery
22 area, that Dr. Geist mentioned, and he, in this paper,
23 brings up my concern, and that is that I feel the
24 importance of the nursery area has been over-emphasized
25 and that it's really the winter range that is the
26 critical point, and I might say that in general in
27 ungulate management, most wildlife management people would
28 agree with me, that it's the winter range that is critical,
29 not the summer range or the fawning range. But for one
30 reason is that that is when the fetus is being nurtured,

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and all these concerns that have been mentioned here do not happen on the fawning grounds. Physiologically the fetus is not absorbed at that date. It is aborted. I'm sure this must be common knowledge to anybody who has been a farm boy. If the stress is at that point, it's aborted, it's not absorbed. The absorption occurs sometime when there is stress and the stress is almost invariably a diet, because the winter range is when the animal is on a bare sustenance diet and it's a real strain for the cows to maintain the growth of the fetus. At that time if the strain is too great, the energy budget is too great, then the fetus is absorbed and this is one reason why we are more concerned about the winter range.

The other thing that he raised
is the sensitivity of caribou during aggregation to

THE COMMISSIONER: Pause there.

You say the fetus is absorbed, so that when the cow reaches the calving grounds it won't produce any offspring; but does the absorption or whatever you call it of the fetus have a detrimental effect on the cow?

A I don't believe so.

Q Oh, I see.

A No, I didn't carry it through, I'm afraid. Quite often I leave the rest of the argument and I don't carry through. The point being made is that the pipeline will be constructed in the fawning grounds.

Q I understand that, and

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1 your point is that the winter range is where the fetus
2 is nurtured and so the nursery area on the coast
3 shouldn't be over-emphasized, it's the winter range
4 that you say is vital.

5 A Definitely.

6 Q It's just this little
7 bit of knowledge about absorption of the fetus that
8 I wanted to clarify.

9 A The other is the sensi-
10 tivity of caribou during aggregation. I believe that
11 it's over-rated and he has this article I've listened
12 to, he has stressed this, and I know Dr. Geist in all
13 of his writing, stressed this point of view, and I have
14 personally studied and have personally been on the
15 ground and been with the animal during these kinds of
16 aggregation and I have found that there is no panic,
17 there is no great concern at that point. The first time
18 I got this inkling was when I studied the reindeer in
19 the Mackenzie Delta and there they corralled 5,000
20 reindeer into a small corral. This was years ago at
21 Kittigazuit and they had 5,000 reindeer milling in a
22 very confined area, and they had a long burlap sheet
23 and what they were trying to do, is to divide off a
24 small section of the reindeer herd so that they can
25 put it through the chute, and while I sat there in
26 1946, to my tremendous surprise, they got all the little
27 kids out, little Inuit kids, and every one of them
28 grabbed a piece of this burlap strap or sheet and then
29 they rushed headlong into this milling band of 5,000
30 reindeer and they completely disappeared. The reindeer

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2 -- the little heads just disappeared and sure enough
3 the leader appeared out at the other end and they were
4 all intact and they hadn't been trampled, and there they
5 had divided off a small section of reindeer which then
6 went into the chute.

7 Well, later that winter I
8 had the opportunity of placing myself in the van
9 ahead of 100,000 caribou belonging to the Bathurst Inlet
10 herd, and I thought I would try it on caribou, and this
11 was at a time when we weren't so worried about aircraft
12 disturbance,
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1 I got ahead of the caribou
2 on Ghost Lake. This is not far from here, and I
3 crouched behind a rock on a shoal on the lake with a
4 camera and then I asked the pilot to fly away and
5 to push the caribou herd towards me, and he did and
6 for a few minutes I really doubted my sanity as
7 100,000 caribou came crashing down towards me, and
8 eventually I got a little bit upset so they were jumping
9 over my head rather closely and I finally stood
10 up and took pictures of this herd coming at a full
11 gallop and they would divide five or ten feet ahead of
12 me and pass one on each side, and I took the whole
13 roll of film until it ran out and then I stepped
14 aside and touched one as it went by and then ran
15 over and touched another one, and after it all
16 happened, I was still there and there were no
17 carcasses around, there were no trampled animals and
18 eventually we, the pilot and I, we made a lasso
19 out of the mooring rope and we lassoed the caribou
20 as they would pass by us.

21 Now, this film all exists. It
22 is in the National Film Board archives, and at various
23 other times I have tried it on the summer aggregation
24 and my colleague Kelsoll has managed to climb
25 aboard a caribou, he says he was shaken off very
26 abruptly, but during this time --

27 So every time I read something
28 like this, written by a generalist, and under questioning
29 in Whitehorse it appeared that in fact he had not
30 studied caribou personally in the Porcupine caribou

1 area. I realize that people are basing their opinion
2 on the western movies of buffaloes stampeding and
3 over turning the settlers' wagons, and as a matter
4 of fact, while I worked for parks I tried that
5 one too in Elk Island National Park, but I didn't
6 have as much confidence in buffalo as I had in caribou
7 so I stood behind a tree and eventually I had to
8 climb the tree.

9 But what I am saying is,
10 you know, people have these concerns and they describe
11 it and I want to know whether the concern really
12 exists. I have actually seen these and I do not
13 see the mangled and the broken legged caribou after-
14 wards.

15 MR. SCOTT: I suppose, Mr.
16 Commissioner, the moral is that if the caribou were
17 asked if Dr. Banfield on that occasion was under
18 stress, they would have said, "No, he was not because
19 he stood his ground, but we know he was."

20 A That is true, Mr.
21 Scott.

22 MR. BAYLY: It sounds like
23 the impact of biologists may be every bit as great
24 as the impact of the pipeline under the circumstances.

25 THE COMMISSIONER: Well, I
26 think that if I may say so, speaking to counsel and
27 the members of the panel, that I hope that you people
28 will feel free to jump in the way that Dr. Banfield
29 has and discuss these things, because, you know, that
30 is what the Inquiry is for, so that all of these articles

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1 and papers that aren't just sitting on the shelf,
2 where only you and your colleagues read them, but
3 that so far as they apply to the development in the
4 north, we get the advantage of the challenge that
5 you have offered to these views that no doubt
6 are held by others besides Dr. Geist --

7 A Well, it is so easily
8 verified. Just go and look at a reindeer roundup
9 and its fabulous experience of little children
10 just disappearing into the middle of a reindeer
11 herd and reappearing unharmed at the other end.

12 THE COMMISSIONER: Well, we
13 have got your word for it, for that particular
14 experience, and that is part of our data base now.

15 Well, I think that --
16 everytime we have one of these very helpful and
17 fascinating statements from Dr. Banfield, that it
18 should be followed by a cup of tea or a coffee.

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20 (PROCEEDINGS ADJOURNED FOR A FEW MINUTES)
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(PROCEEDINGS RESUMED PURSUANT TO ADJOURNMENT)

THE COMMISSIONER: Yes, Mr.
Bayly?

MR. BAYLY: Q Dr. Banfield,
on page 9 you discussed some of your evidence, you
discussed under the acceptability of the environmental
impact the Garrison Diversion in North Dakota, that is
the impact statement on that, and you've been kind
enough to provide me with a copy to look at. I gather
what you're saying is that, it's the method that has
impressed you in this, and not necessarily the con-
clusions that are reached in the Garrison study.

WITNESS BANFIELD: Yes, I
referred to it only as an example where quantitative
data have been used for an assessment.

Q Right, and there have
in fact been criticisms of, not only some of the results
but on some of the things that that impact assessment
failed to study north of the Canada-U.S. border.

A Yes sir. I was aware of
that, as I mentioned to you privately, it was of great
concern to Canadians and ^{it has been} in the press, and you've been
good enough, Mr. Bayly, to give me a copy of Mr.
Templeton's comments on the report, and it's of no
concern to me that he believes they fudged their results.
As I said, I was simply referring to the method of
using quantified data.

Q Yes, and so there's no
point in us going into it, whether they did fudge or
not, because it doesn't have anything to do with this

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1 Inquiry. But the method that they used to gather
2 and quantify certain aspects of the data are similar to
3 the ones that you used, similar methods.

4 A Well, I think in principle,
5 yes.

6 Q I have a copy of a telex
7 here from Mr. Templeton, Mr. Commissioner, but I have
8 no doubt that he would want to comment on this in person.
9 I understand that he and the Board will be back with
10 us again very shortly and he may want to say something
11 himself on that.

12 THE COMMISSIONER: I gather
13 after he's spoken at a conference being held in Ottawa
14 this week, and he will favor us with his views when
15 he gets here.

16 MR. BAYLY: Q Now, Dr.
17 Banfield, you of all the members in this panel have
18 had the advantage of being in Scotland and seeing the
19 mobilization for a large oil development project, and
20 I wonder, sir, whether you have any comments on your
21 observations as they relate to environmental impacts
22 and the way in which they are being monitored by the
23 authorities or by anybody else in Scotland.

24 A No sir, I really don't
25 have any useful comments at this stage except to point
26 out that environmental impact assessment in Britain
27 appears to be different than what we've been doing
28 in North America. Here we are project-oriented. We've
29 undertaken environmental impact assessment of a
30 project. In Britain this seems to be considered part

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1
2 of a regional planning process, and they deal with it
3 on a regional multi-land use planning approach, and
4 so at this point I havenot been able to see any closer
5 benefits.

6 Q All right, I gather you
7 have been looking at it in case there is something
8 that would be beneficial for Arctic Gas to know about
9 their approach that might be either be helpful or criti-
10 cal of their approach.

11 A Well, not really, sir.
12 This is a personal project, having to do with a book
13 I'm writing on environmental impact assessment.

14 Q Yes.

15 THE COMMISSIONER: By the
16 way, Dr. Banfield, the Department of the Environment
17 in London wrote to me about a year ago to ask how we
18 were going about this Inquiry. I think Mr. Waddell
19 sent them my rulings and a lot of other bunk, and no
20 doubt that deterred them from even pursuing this
21 approach. If you want that letter and Mr. Waddell's
22 reply, you're certainly welcome to it. I think it's
23 part of the public documents of the Inquiry. But to
24 be serious for a moment, they are adopting an approach
25 -- when I visited Alaska, some of the officials in the
26 Alaskan Government said to me that they felt there
27 should have been a land use plan developed for the
28 whole state, before they proceeded either with the
29 allotment of the energy corridors for the pipeline or
30 with the state's selection of lands, or with the native

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1 land selections. They were about half-way through
2 that when the events of 1967-68-69-70 overtook them,
3 and the land use plan was just thrown out the window.

4 In England and Scotland, I
5 take it from what you say, they had developed, at least
6 a regional land use plan and are trying to fit the whole
7 oil development picture within that. Is that what
8 you're saying?

9 A Region by region, they have
10 Regional Councils. Apparently the most successful area
11 in which they integrated the petroleum industry is in
12 the Orkney Islands, which prior to the North Sea oil
13 discoveries, were in quite a primitive state and they
14 were apparently able to marshall their planning forces
15 and to adopt a plan and the petroleum companies have
16 in fact responded to the plan, and they were told
17 where they would build their wharves and where they
18 would build their docks, and stockpiles, and how they
19 would operate within the community infrastructure.

20 MR. BAYLY: Q My understanding
21 with regard to oil development in this area that there
22 have been social repercussions which were not all
23 entirely satisfactory. There has been mention in the
24 press, I understand, of an organization called the
25 Tartan Army, which is not entirely satisfied with the
26 pipeline.

27 A Well, sir, I'm a sassenach
28 and I couldn't become a member of that.

29 Q You aren't acquainted
30 then, are you, Dr. Banfield, with whether fisheries

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1 information has been relayed to the public in the area
2 where the offshore drilling and oil rigs are ?

3 A That is a very disturbing
4 aspect. The government appears to have just reserved
5 -- I don't mean "just" from the point of time, but
6 to have particularly reserved/^{the}petroleum areas, or the
7 areas of the North Sea where the petroleum reserve
8 resources are found. The government have reserved that
9 for that purpose, and have closed fishing in those
10 areas, and fishermen are no longer able to go to those
11 areas.
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1 Q So at least from the
2 fisherman's point of view, it's impossible for them
3 to assess what, if any effects, this development
4 has had on their catches, because they aren't allowed
5 into these areas.

6 A Well, I think that the
7 evidence is that their catches have dropped because
8 they are no longer able to fish in those areas.

9 Q Yes. Now, as I under-
10 stand, Dr. Banfield, we have ^{all} agreed that the process
11 of environmental impact assessment is one in which
12 everyone is learning, and I would invite your comments
13 if you have any, about whether having gone through this
14 process with and for this applicant, whether there're
15 things that ^{if} you were starting again that you would
16 like to see done, or that you would change in the
17 assessment process that has been conducted.

18 MR. MARSHALL: Well, sir,
19 this may be of some interest. I don't know whether
20 it is appropriate to have a witness invited to comment
21 on the appropriateness of this Inquiry. It seems to
22 me it is putting Dr. Banfield in --

23 MR. BAYLY: I am not talking
24 about the Inquiry, Mr. Commissioner.

25 MR. MARSHALL: Well, you
26 are talking about the --

27 THE COMMISSIONER: Yes, I
28 might as well know now what is in store.

29 MR. BAYLY: I was thinking
30 those are more of the processes --

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1 THE COMMISSIONER: One of
2 us may be asked to review the book, so that is worth
3 bearing in mind.

4 MR. MARSHALL: Some one
5 may be asked to write the forward -- Dr. Banfield
6 at least will want an undertaking that ^{you} will at least
7 purchase a copy, even though we may have had an
8 advance preview of some of the contents.

9 MR. BAYLY: I am thinking
10 though, sir, not of Dr. Banfield's assessment of this
11 Inquiry, which, I would submit, even if he had one,
12 would be more useful at the end of the Inquiry than
13 in the middle of it, but of the process of conducting
14 the review in which he participated for the applicant.
15 This is a new field or a new art or science.
16 If he has no comments, that is fine, but he may
17 have some.

18 A Well, it is a matter of
19 historical perspective, sir. I think it is quite
20 fair to say if we were starting today, there are other
21 procedures which I would suggest could be followed.
22 I had in my statement that one has to remember that
23 we started in 1971. By 1973, '74, '75, there is a
24 growing literature on environmental impact assessment.
25 If we had had that literature available then, un-
26 doubtedly, well, starting now, a project would consult
27 that literature.

28 Q All right, so it would be
29 fair to say that you haven't really assessed it in
30 those terms, but you would want to consult the literature

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1 before saying whether you would do it the same way
2 again, or use differences either in approach or
3 technique?

4 A Well, I think you have
5 to keep my role in mind. I am quite sure now I would
6 suggest to a client other approaches, but that doesn't
7 guarantee that the client would accept my recommendation.

8 Q All right, and what
9 would some of those recommendations be? Because
10 I understand that it is possible that some of these
11 might be things that the applicant could do between
12 now and final design which might be helpful.

13 A Well, I don't think they
14 could do them, but certainly the approach that has been
15 developed at the University of British Columbia,
16 using a systems analysis approach and computers and
17 interaction matrices which are different than
18 impact matrices. They offer more powerful tools of
19 analysis.

20 Q All right, what is an
21 interaction matrix, just so that the Commission under-
22 stands that term?

23 A It just happens that I
24 have my lecture notes here, sir.

25 The paper was by J.H. Ross,
26 published in 1974. It is the "Naniamo Environmental
27 Assessment Methodology," and it was published by
28 Environment Canada, it is probably no mystery to
29 counsel.

30 They use an interaction

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1 matrix. One of the complaints about the Leopold
2 method we mentioned was, or that you mentioned, sir,
3 that it was a two-dimensional, and we all agree that it
4 is multi-dimensional. There is a multi-dimensional
5 area. I am sorry, I conceive of these things in
6 mathematical terms, but I am lost to explain it to
7 you easily. But this -- well, we will say that many
8 factors are interrelated and so that grass can be
9 related to caribou and also to geese and through them
10 to wolves and Arctic fox, and to man. That would be a
11 chain of interactions and it is that sort of thing
12 that the simple two dimensional matrix cannot deal
13 with. But one of these interaction matrices can
14 deal with trying to solve situations that have
15 four or five or six or possibly even more interaction
16 points. Q' In the event that somebody wanted to
17 build an oil pipeline in the future in the area
18 -- or the areas that you have examined in the North-
19 west Territories, would you recommend that they
20 investigate this tool?

21 A Yes, sir.

22 Q Are there any other
23 techniques or innovations in this art or science that
24 you would recommend to such an applicant to investi-
25 gate?

26 A Well, this method
27 I mentioned is really a sort of a computer tool,
28 a larger conceptual method that this forms only a
29 part of would be called a systems approach, a general
30 systems analysis and I would recommend that.

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Q And are there any others
before I move on to Mr. Hemstock?

A I think that that is
enough, sir.

THE COMMISSIONER: Next
question.

MR. BAYLY: Mr. Hemstock,
you have mentioned several times, environmental
inspectors, and what I am concerned with is, how you
are going to train these people to do some of the
tasks that have arisen as you have developed your
schemes. Have you got a training program any farther
along than you had when we last spoke about this
matter?

WITNESS HEMSTOCK: We have
not gone much further with the training program, we
are working on it now and I don't know how much --
I can't recall how much we have discussed this before
this hearing. I would expect, I would hope that our
environmental inspectors would be trained and have a
degree in one of the natural sciences, and that we would,
in the course of their training, would provide them
with experience on pipeline construction.

The other alternative, and
we have also considered this, is to use engineers and
try and give them some environmental training. I
personally prefer the route of taking a person with
a degree in biology and providing training in the
construction and operation aspects of pipelining.

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1 Q Now, I gather then you
2 haven't gone to the stage of deciding how decisions would
3 be arrived at as between the environmental inspectors
4 and the project managers for particular spreads. I
5 don't mean a particular --

6 A Yes, we have outlined
7 that. I believe it was in the responses to the
8 National Energy Board. We have said that the inspectors
9 in the field will be responsible to the senior man on
10 the spread, who will be an Arctic Gas employee, and that
11 we would expect that almost all of the decisions could
12 be made in the field between those two people. We've
13 also said, though, that in the event of them not being
14 able to arrive at a conclusion, that the environmental
15 inspector has direct access to the director of environ-
16 mental studies in Calgary and it would be then a
17 matter of company policy and senior management making
18 the decision.

19 Q Now, when things happen
20 such as a storm event, for example, they happen very
21 quickly, and have you thought of measures to ensure
22 that your environmental inspector can be on-site so
23 as to assist in making the decision where and when it
24 is needed?

25 A The environmental inspec-
26 tors would be assigned to this spread and they would
27 be -- well, ^{there} would always be probably two of them
28 available on the spread.

29 Q Would you have one out-
30 side at all times, or would they have an office in the

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1 camp, or have you thought of that?

2 A I would expect that one
3 man would be on the construction line and would be out-
4 side, and one man would be assigned to liaison and paper
5 work at the camp inspection facility.

6 Q I gather that these
7 would also have a -- the environmental inspectors would
8 have a liaison role with the governmental agency that
9 would be monitoring the building of the pipeline.

10 A Yes sir.

11 Q Now, with regard to areas
12 which may at this point anyway be beyond the terms of
13 reference of this environmental panel, could you tell
14 me whether discussions have been held with regard to
15 the hunting of game, that is game regulations with
16 personnel from game management? I know that Mr. Jakim-
17 chuk has responded to that to say that that's the
18 responsibility of government, and I accept that; but
19 will you be discussing it with them and making recommen-
20 dations perhaps to them?

21 A We will be discussing it
22 with them. I have -- I've not discussed it, I'm not
23 aware of any discussions that any of our other consult-
24 ants have had with game management people.

25 Q And would the same be
26 true with regard to fishing regulations and the various
27 fisheries authorities, that have responsibility for
28 regulating the catching of fish?

29 A Yes, that's correct. I
30 should point out that we have discussed our programs

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1 from time to time with the officials of the Canadian
2 Wildlife Service. To the best of my recollection we
3 have not discussed this matter of hunting and fishing.

4 Q O.K. For example, I
5 invite you to agree that it would make it a lot easier
6 for the company rules if you could get co-operation
7 from Fisheries people to close certain streams for the
8 seasons in which the pipeline construction activities
9 take place.

10 A Yes, we see this certainly
11 as having some advantage to us and we have -- I have
12 not directly, but some of my people have discussed,
13 I think in a very preliminary way with Canadian Wildlife
14 Federation the possibility that this might be put
15 forward as a suggestion.

16 Q Now, with regard to air-
17 craft regulations, in the area of the pipeline have
18 you or to your knowledge has anyone from Arctic Gas
19 had meetings or negotiations with the Ministry of
20 Transport to see if they would be prepared to consider
21 regulations in the area of pipeline construction
22 which would aid you in carrying out the minimum number
23 of flights -- sorry, the maximum number of flights and
24 the minimum altitude recommendations that you would
25 like to put forward?

26 A I'm not aware of any
27 discussion of that sort. We have a consultant working
28 on the requirements for our own aircraft needs and he
29 has probably had some discussions with the proper
30 government agencies. I am not aware of the details.

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1 Q All right, would it be
2 possible for you to check that with him and perhaps
3 let us know whether these discussions have taken place?
4 I realize until we get something firm there is little
5 point in finding out what has been discussed, but I
6 would like to know if the matter is under consideration,
7 Mr. Commissioner.

8 MR. MARSHALL: Well, I suppose
9 we can find that out, Mr. Commissioner. I don't know
10 whether it really helps. The Ministry of Transport
11 will do what it considers appropriate, I'm sure.

12 MR. BAYLY: Mr. Commissioner, I
13 realize that they will do what they figure or feel is
14 appropriate, but it may be significant, if the applicant
15 is actively suggesting things to them because they have
16 the baseline data and it may be in a position to recommend
17 things from this data that may well be incorporated.

18 THE COMMISSIONER: Yes, but why
19 -- you see, the Ministry of Transport might well say to
20 Mr. Hemstock if he approached them, or the Ministry of
21 the Environment might say, "Look, there's an Inquiry
22 at work on this. We think that the INquiry should report
23 to the government and the various departments concerned
24 should take a look at what recommendations are made and
25 then they're in a position to get down to cases on this."

26 Now, I can quite understand
27 that in the meantime they might well be looking at the
28 same problems that we're looking at. Some would argue
29 they would be remiss in their duty if they were not,
30 but why does it help us if they have approached Arctic Gas

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1 or if Arctic Gas has approached them? The Ministry
2 of Transport, we know, is looking at some kind of
3 feasibility study for the Tuktoyaktuk Harbour that could
4 never go ahead unless there were a pipeline built. Well,
5 maybe they feel they should look at that sort of thing
6 in case a pipeline does go ahead, and they're not
7 caught that they're unprepared. But I mean, this is
8 a vast organization, these gentlemen represent. If you
9 -- all these producers in the delta are probably talking
10 to various government departments. I don't see that it
11 helps us very much if it turns out they're talking to
12 them or they're not talking to them.

13 MR. BAYLY: Mr. Commissioner --

14 THE COMMISSIONER: Do I misunder-
15 stand the thrust of all this?

16 MR. BAYLY: -- well, perhaps
17 it's me that misunderstands, Mr. Commissioner, but my
18 point in asking this question and ones related to it
19 is this, that the applicant has said, "We will be
20 restricting the following activities as far as our
21 employees are concerned," and it may be impossible to
22 restrict the activities of people who are not its
23 employees. They may be able to make recommendations.
24 If it turns out that the regulations that they would
25 like to see imposed on aircraft pilots, and I assume
26 most of those will not be in their employ, if those
27 are out of the question as far as the Ministry of
28 Transport is concerned, then it does us little value
29 to hear statements from the environmental panel that
30 aircraft should fly at 2,000 feet and should not fly

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1 other than 2.5 flights per hour because then we will
2 have a promise from the applicant or an assumption by
3 the environmental panel of the applicant that they
4 cannot deliver.

5 THE COMMISSIONER: Excuse me.
6 This may be important and I'm awfully sorry I'm not
7 getting it. Will you repeat that?

8 MR. BAYLY: The applicant
9 has told us that they will be restricting their employees
10 activities in certain areas -- hunting, fishing, and
11 aircraft flights, as they relate to regularity and
12 height. Now I think that's commendable; but where it
13 breaks down, sir, is that there will be a large number
14 of people, as I understand it, who will be servicing
15 this development, who will only respond to government
16 regulations, not to the regulations of this company.
17 And that if we are told by the applicant that flights
18 must be at a minimum ceiling of 2,000 feet, and at a
19 frequency of 2.5 flights per hour or less, and the
20 Ministry of Transport has spoken to the applicant and
21 said, "I'm sorry, that's out of the question, we
22 can't support you in those regulations, that's not
23 safe," then I would submit, sir, that that's relevant
24 to this Inquiry because they will be recommendations
25 that cannot be carried out, and are assumptions
26 that this panel has made that are impractical or
27 impossible.

28 THE COMMISSIONER: All right.
29 Now I see the point of that. I would expect that
30 people on this panel, Mr. Hemstock especially, have

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1 talked to the Ministry of Transport and they said
2 "That's impractical," that Arctic Gas will tell us.
3 I would expect also that Commission counsel and the
4 Inquiry staff will make the usual enquiries of these
5 departments to make sure that we're not pursuing
6 recommendations that couldn't be enforced by the
7 only body that could enforce them -- not Arctic Gas.
8 They don't control the skies. The Ministry of Transport
9 does. And if -- and that's important, because if
10 these flights can't be controlled, then that means the
11 impact is going to be greater than these gentlemen have
12 assumed and we have to tell the government that, and
13 when they're deciding whether they want to build this
14 pipeline, they've got to take all these things into
15 account. But I don't think you have to ask each of
16 these gentlemen, "Have you talked to the Ministry
17 of Transport, the Department of the Environment, or
18 this or that?" I mean if they have surely to God
19 they're going to tell us right at the front end in
20 their evidence in chief.

21 "We want to do this but
22 we've been told we can't."

23 In the meantime I expect that
24 the Inquiry staff are checking these things out where
25 it's appropriate to do so. I mean all you have to do
26 is write a letter presumably. That's not necessarily
27 the best way.

28 MR. BAYLY: Not today, sir.
29
30

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1 MR. BAYLY: Well, Mr.
2 Commissioner, I am content, if these are matters that
3 we can be satisfied that the Commission Counsel is
4 looking into.

5 THE COMMISSIONER: Well, I
6 think that we should find out at this Inquiry whether
7 these things are practical so far as the appropriate
8 government department is concerned. I will tell you
9 why. At the end of this Inquiry there is a report
10 to the government, then the National Energy Board
11 comes along with its report. The Government as
12 a matter of policy decides whether the pipeline
13 is built, who should build it, where it is going
14 to go.

15 Now, there are also recom-
16 mendations from this Inquiry about the terms and
17 conditions. The first part of my task is to report
18 to the Government on the impact, and they look at that
19 they look at the Energy Board's report that relates
20 to matters such as cost of delivery to the users in
21 the south, and then they decide: "All right, we can
22 go ahead with this pipeline" or "We can't." "Foothills
23 gets to build it", or "Arctic Gas gets to build it",
24 and of course that means that they have chosen the
25 route as well.

26 Then they turn to the
27 recommendations, which is the second part of this
28 Commission's task, regarding the terms and conditions
29 under which it should be built, and presumably those
30 in the meantime have been distributed to all the

1 departments concerned and they are looking at them and
2 deciding what they want to do with them and deciding
3 what their reaction is to them, but I don't want them
4 to come along at that stage and say, "Well, this
5 requirement about 2,000 feet is just hopeless because
6 --" blah, blah, blah. We want to know about that
7 at this stage, and it seems to me that that is
8 essential, but I would really -- I am really
9 confident that if Arctic Gas is having conversations
10 with the Ministry of anything, and they are saying to
11 Arctic Gas, "Well, you're willing to put flights
12 at 2,000 feet but we can't do that", that they are
13 not going to continue with this charade here and
14 promising, "Oh, yes, we will go along with that", and
15 so on --

16 MR. MARSHALL : Mr. Commis-
17 sioner, if I might just comment on that. Your
18 remarks made me think back to a statement that you
19 made some months back about the utility of the
20 participants at the end of the phase suggesting
21 terms and conditions that they think is appropriate
22 be included in your report, and this is perhaps an
23 example, were such a recommendation to be put forward,
24 and during the course of the Inquiry, not at the end
25 of it, but earlier on in the Inquiry, and there was a
26 list of these things, and that sort of checking out,
27 if you like, could be done, not just from the point of
28 view of going to the government to see whether or
29 not it would be prepared, through its various agencies,
30 to implement such a regulation, but also, if it is

1 one being suggested by Mr. Bayly's clients, it could
2 be examined by either the Arctic Gas engineers or
3 the Foothills engineers and they could determine whether
4 or not it would be feasible. This is maybe just an
5 example of where that could be usefully employed.

6 THE COMMISSIONER: Well, that
7 is the kind of thing that I was driving at at the
8 time, and the trouble is that like poor old Mr.
9 Williams of Arctic Gas, we are all occupied continually,
10 nobody has time to sit down and write anything out.
11 But I think that at the end of Phase III or certainly
12 after the Delta Phase, an awful lot of our technical
13 people on our Inquiry staff, and I am sure on the
14 pipeline companies' staffs, will be able to put
15 their minds to some of these terms and conditions, because
16 during Phase IV and when we hold the southern hearings,
17 we will need all of these engineers and biologists and
18 so forth at the Inquiry, and that is an appropriate
19 stage for a lot of that work to get done. It seems
20 to me. I hope that Mr. Scott has got a note of
21 that.

22 MR. BAYLY: Mr. Commissioner,
23 if we know that this is going to be looked into and
24 some of these things of course, with regard to certain
25 participants are beyond our ability to locate --

26 THE COMMISSIONER: Oh, I know,
27 I know -- so the Commission staff has to look into
28 some of these things. But all I am saying is that I
29 don't think that we have to exhaust these things with
30 the Arctic Gas and Foothills people or we will never

1 get through.

2 MR. BAYLY: Right.

3 WITNESS GUNN: Mr. Commissioner.

4 THE COMMISSIONER: Yes.

5 A This subject is of
6 particular interest to us, of course, and I was going
7 to make some comment on it under the general heading
8 of monitoring programs. I have a suggestion in that
9 regard which I would be happy to present at the
10 appropriate time.

11 THE COMMISSIONER: Well, is
12 right now the appropriate time?

13 MR. BAYLY: I would like
14 to hear it, sir.

15 A If you wish, sir.

16 THE COMMISSIONER: Go ahead.

17 A Our feeling is that
18 there needs to be close co-ordination with the
19 Ministry of Transport officials and we have been in
20 touch with them to the extent that we are aware that
21 they are already studying and have compiled flight
22 patterns for the areas in which we are interested,
23 and that these take into account the heights at
24 which the aircraft are flown, the type of aircraft
25 and the routing.

26 We would like to suggest, if
27 that could be computerized, if that information could
28 be computerized, it would be possible to pick out those
29 flights which take place over sensitive areas at
30 sensitive times, and that through that information

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1 and through information that would be fed in about
2 the requirements of the pipeline constructors and the
3 producers and other people in the area, as to probable
4 future traffic routings and densities, that from this
5 information it will be possible to design air lanes
6 to avoid the sensitive areas that we are particularly
7 interested in, with particular regard to the routing
8 and the time of year and also the spacing.

9 Now, these restrictions, and
10 they would be restrictions, would be limited to
11 certain specific areas at certain specific times and
12 that otherwise, apart from a general requirement for
13 altitude, there need be no restrictions. So that we
14 would like to make our restrictions quite specific
15 and I feel that a committee representing the
16 producers and the pipeline construction people and the
17 industry should together, with the Ministry of
18 Transport, work out the details of such a system.

19 MR. BAYLY:

20 That is the kind of
21 thing that I had hoped, for, Mr. Commissioner, that
22 this would be the way things are done. It is again
23 something that my client certainly can't -- haven't
24 got the equipment or baseline data or whatever it is
25 to do it with --

26 THE COMMISSIONER: Yes.

27 MR. BAYLY: -- but would like
28 to see done.

29 THE COMMISSIONER: You don't
30 have a computer either, I don't suppose --

MR. BAYLY: Not, yes, sir.

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1 THE COMMISSIONER: Not in that
2 office in Inuvik --

3 MR. BAYLY: No. We have a
4 telex, sir, but not a computer.

5 Q Now, Mr. Hemstock, from
6 the point of view of the environmental concerns
7 that have been expressed to you by your --

8 THE COMMISSIONER: By the
9 way, let me just add something, that this whole
10 question of Arctic Gas making promises, and I am not
11 suggesting an election processor something --
12 There is a tendency in these hearings for counsel
13 to ask Arctic Gas to make commitments and for Arctic
14 Gas to offer commitments it seems to me are beyond
15 the legal scope of any employer in this country.
16 This came up at Latham Island, I think. We had a
17 community hearing there and people were asking, I think
18 Mr. Carter and Mr. Littledale of Foothills about
19 keeping the workers on the spreads within the camps,
20 and you know, people almost expected them to turn them
21 into the equivalent of P.O.W. camps so as to prevent
22 these workers getting out.

23 Well, you know, we live in a
24 free country where people have the right to move around
25 and we live in a country where the trade union
26 movement is organized. The kind of workers you are
27 going to have on that project, and the ability of
28 Arctic Gas under the law, and as a matter of sheer
29 economic exigency to tell them you can't have guns
30 in camp, you can't leave the camp, you can't go into

1 the village or the town. You can't go into the
2 bush. You can't do this, you can't do that. Their
3 capacity to do that is perhaps rather more limited than
4 they are inclined to think at this stage of the
5 game.

6 Arctic Gas isn't like the
7 Hudson Bay a hundred years ago in this territory, or
8 in many parts of the country where they governed
9 it. It is a different sort of situation and I
10 hope that Arctic Gas and Foothills are giving some
11 thought to the whole impact of freedom of movement
12 as we know it in our country to their spreads and as
13 well to the impact that the trade unions will have in
14 determining on the job who can get out and who comes
15 in and what comes in and so forth.

16 Well, it is another one of
17 my five page digressions.

18 MR. BAYLY: Even the Hudson's
19 Bay Company, I understand, wasn't entirely success-
20 ful in keeping its people out of the settlements as
21 Mr. Hardy reminds us.

22 THE COMMISSIONER: Well, that
23 is true, yes.

24 MR. BAYLY: Well, I would
25 hope, Mr. Commissioner, that the --

26 THE COMMISSIONER: Well, what
27 I am getting at is for Arctic Gas to say, "Oh, yes, we
28 will do that. If you want us to keep the workers in
29 the camps, sure. We won't let them use the trucks.
30 They can't use guns. They can't go out in the bush.

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1 They can't go into town. It is easy to make those
2 representations to the Inquiry and even to the Govern-
3 ment. Once you get that job rolling it is a different
4 kettle of fish, and when you have got 6,000 construction
5 workers who decide individually or collectively that
6 they are going to go into town or they are going to
7 use alcohol or they are going to insist upon the
8 company of women in the camps, the promises of
9 Arctic Gas may go by the board, and not because they
10 weren't made in good faith, it just becomes impossible
11 to keep them.

12 Well, that is a Phase IV
13 issue and let's leave it until then.
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McCart, Jakimchuk
Cross-Exam by Bayly

1 MR. BAYLY: That is the reason
2 that I went into those areas, realizing that perhaps
3 more is needed than company regulations to regulate
4 certain activities, and I would hope, sir, that the
5 applicants will from time to time even if they have
6 suggested some of these things are possible, if they
7 have reason to think that they may have said too much
8 that they will correct that so that we aren't left
9 with the impression, and that people in the communities
10 aren't left with the impression that certain things
11 can be carried out that cannot.

12 THE COMMISSIONER: Well, at
13 James Bay they didn't like the working conditions so
14 they burned the place down. That sort of remedy
15 would present more difficulty --

16 MR. BAYLY: It's hard to find
17 kindling I understand, in the winter.

18 Q Now, Mr. Hemstock, just
19 a couple more questions. With regard to the training
20 of the employees themselves in the matters that are
21 of concern to your environmental consultants, have you
22 got any farther in devising a program that will give
23 them some idea of the dos and don'ts of the areas that
24 they're going into so that they won't have the impacts
25 that you're concerned with on birds and fish and
26 mammals?

27 WITNESS HEMSTOCK: We haven't
28 got much further in the last few weeks since this was
29 first discussed. I know that there is a report or
30 a submission just come into our office in Calgary with

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1 regard to training. I've not seen it and I don't know
2 what the details are but it is being studied and we're
3 just pursuing the proper, trying to find the proper
4 approach to training the large number of people we have.

5 Q Have you thought about
6 whether you'd be doing this training before the people
7 came into the north, or whether it would be training
8 that would take place when they had arrived?

9 A I believe that there will
10 be both. I think that you have to provide training
11 before they arrive, but that certainly for key positions
12 there would be on-the-job training too.

13 Q Now, as I understand
14 evidence we've had from people from Alaska, the turnover
15 rate on that particular pipeline is quite high, and
16 I gather this means that if the same thing happens
17 on your project this is going to take a tremendous
18 amount of energy, this training process.

19 A Yes, our tentative
20 estimates show that it's going to take a lot of people
21 and a great number of dollars to provide the training
22 because there will be a continual stream of new
23 employees into the project.

24 Q I gather by the time we
25 get to the fourth phase we will have some idea of the
26 contents of that training program, so that other
27 participants may be able to comment on things that
28 should or should not be in that.

29 A Yes.

30 MR. BAYLY: Those are all the

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1 questions I have, Mr. Commissioner.

2 THE COMMISSIONER: Who is
3 next? Mr. Veale?

4 MR. VEALE: Mr. Commissioner,
5 perhaps this would be an appropriate time for some
6 housekeeping that I wish to take up with the Inquiry.
7 The first matter that I'd like to raise relates back
8 to our discussion when I was out here last time in
9 November about further hearings related to --

10 THE COMMISSIONER: If you're
11 going to take a few minutes, maybe we could excuse the
12 panel. They're certainly welcome to ~~remain~~. Mr. Jakim-
13 chuck has already left. Well, carry on.

14 MR. VEALE: Relating to the
15 matter of calling further evidence with respect to the
16 Alaska Highway or the Fairbanks corridor, I've dis-
17 cussed this with the Council for Yukon Indians and
18 they have asked me to advise you that they have great
19 concern about the status of the Fairbanks corridor.
20 In their submission to the Inquiry in Whitehorse they
21 indicated that they had great opposition to the northern
22 route, however, the Fairbanks corridor is one that
23 they would be willing to look into further, and they
24 put conditions on that that land claims be implemented
25 and settled and another condition that community
26 hearings would be held on that corridor.

27 'Now, my submission at this
28 moment relates to the aspect of community hearings.
29 We appreciate that the Inquiry has certain scheduling
30 and timing difficulties and financial difficulties in

1 holding full-fledged community hearings in the Yukon
2 down the Fairbanks corridor. However, we feel that
3 there is another avenue possibly that could alleviate
4 the concerns of the Council for Yukon Indians and
5 perhaps shed some light on the attitudes of the Indian
6 people along the Fairbanks corridor, and our suggestion
7 is this, that it would be possible for a member of the
8 Inquiry staff -- and we would suggest Mr Jackson,
9 Professor Michael Jackson and a representative of the
10 Council for Yukon Indians, visit the communities along
11 the Fairbanks corridor, speak to people in the communi-
12 ties, meet with the Band Councils in those communities,
13 and formulate some assessment of their attitudes
14 towards the pipeline coming down the Alaska Highway
15 through the Yukon Territory. This could be done, we
16 submit, for a very minimal expense compared to
17 full-fledged community hearings, and the reason that
18 it's an important matter is the whole element of the
19 attitudes of those people to the pipeline should be a
20 factor taken into consideration by this Inquiry, because
21 if the attitude is the same as the community hearings
22 have indicated along Old Crow and along the Mackenzie
23 River, that's one thing. If the attitude appears to
24 be somewhat different, that may be an important factor
25 to consider.

26 Now, when you were in Whitehorse
27 as well, Mr. Commissioner, you indicated that if there
28 was reason you would return to Whitehorse for a further
29 community hearing.

30 THE COMMISSIONER: That's

1 right, that's what I said.

2 MR. VEALE: I can check that
3 reference after. Our submission is that, upon a
4 report having been made by those two individuals that
5 a community hearing, a further community hearing could
6 take place in Whitehorse, which would elicit responses
7 to whatever that report said, and whatever the opinion
8 was, and that would have the advantage of giving
9 the citizens of Whitehorse another opportunity to
10 make representations to this Inquiry as well as allow-
11 ing the Indian people along the highway to attend at
12 Whitehorse if there was some major concern about the
13 report that was presented to the Inquiry.

14 Now those are my submissions,
15 Mr. Commissioner.

16 THE COMMISSIONER: Mr. Scott?

17 MR. SCOTT: I would hope that
18 in the future to avoid the time of the Inquiry at its
19 formal sessions and to avoid the time of the witnesses
20 being utilized, to debate what are either substantive
21 or procedural matters that relate to the direction
22 the Inquiry is proceeding on. It would be helpful
23 to discuss this in advance at a meeting of the lawyers.
24 Now, I'll be prepared to call a meeting at any time
25 that Mr. Veale wants one to discuss, in a preliminary
26 way, and not to suggest that it can't be discussed
27 before you and ruled on by you, but it's useful to have
28 a preliminary discussion about it so that we nail down
29 precisely what is at stake in the proposal. I would
30 hope that if Mr. Veale is serious about this, as he is,

1 what he will do is draft up in short form the proposal
2 that he contemplates and then we will have a meeting
3 to discuss it, and then the matter can be brought before
4 you when its fullness is understood by the lawyers at
5 least, for your decision. That's item 1.

6 Item 2. Item 1 is a proced-
7 ural matter that I think will save us time in the
8 future when questions of this type arise.

9 Item 2, about the Fairbanks
10 corridor, there is inherent in this problem a jurisdic-
11 tional question that is not without difficulty. There
12 are -- no one as far as I know has offered to build a
13 pipeline down the Fairbanks corridor, and that may be
14 too bad.

15 THE COMMISSIONER: They're
16 dragging their feet.

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1 MR. SCOTT: They are
2 dragging their feet. Mr. Gibbs has done something
3 to induce them to do that. They have failed to
4 respond to his suggestion that they should amend
5 their application to go down the Fairbanks corridor and
6 what we are confronted with is two applications that
7 are relatively precise as to where they want to build
8 and those are the applications that you have
9 to deal with. It may be that the people on the
10 Fairbanks corridor would like to have a pipeline
11 down there. It may be that the people, if there are
12 any, who live on the edge of the Shield route would
13 like to have a pipeline there. But that is beside the
14 point, it seems to me, and the only way in which the
15 Inquiry, as far as I understand now, has jurisdiction
16 to look at these matters at all is, insofar as
17 they are raised by the obligation imposed on both
18 applicants before making their application, to consider
19 alternative corridors, and that, of course, is why
20 we went to Whitehorse and heard the evidence that
21 we did, because there is an obligation on both appli-
22 cants to consider alternatives. They explained how
23 they considered them and what they did with them.
24 But it doesn't follow from that, in my respectful
25 view, that we can proceed with the matter as if they
26 had made an application to build down the Fairbanks
27 corridor.

28 Now, it may be that there
29 is some other way in which the matters that Mr.
30 Veale wants canvassed can be canvassed, but it seems to

1 me if he wants to proceed with this he should prepare, in
2 short form a scenario for all of us as to what he
3 contemplates, the way in which he says it is within
4 the terms of reference of the Inquiry and the
5 scope of the added hearings that he contemplates,
6 and then when he has done that, we can all look at
7 it and make our representations to you in orderly
8 fashion and you can decide whether we should proceed in
9 that way or not. But to have a free ranging debate
10 about it now, it seems to me, isn't going to advance
11 us because the proposal isn't advanced with any
12 particularity.

13 MR. VEALE: Yes, I will
14 prepare pleadings, Mr. Scott. No --

15 MR. SCOTT: Very good,
16 very good --

17 THE COMMISSIONER: I thought
18 I understood it, actually --

19 MR. VEALE: With respect to
20 Mr. Scott's submission that everything be hashed out in
21 advance, I personally have some doubts sometimes as
22 to the value of orchestrating matters to that
23 extent, and I feel that some issues should be discussed
24 fully before the Inquiry in public, and I am prepared
25 to do that now.

26 I am also prepared to have
27 a meeting of counsel. I haven't been aware of -- I
28 have heard of meetings of counsel that have taken
29 place in the last two months and have never been in-
30 vited to attend and I didn't realize that they were

1 considered as important as they were. I have obviously
2 missed something.

3 MR. SCOTT: Mr. Commissioner,
4 the point I make of it, is simply this, and I am
5 sorry, if Mr. Veale has missed a meeting of counsel
6 or two, but the point I make of it is this: that
7 we are now at a stage when we could devote a day to
8 discussing the ramifications of this proposal. No
9 notice has been given to me that Mr. Veale wants
10 to discuss it now. I haven't in precise form any
11 real idea of what he contemplates and it seems to me
12 that we indulge ourselves and waste other people's
13 time if we just launch into this because it was a
14 time when Mr. Veale got near the podium.

15 If he wants to make this
16 presentation and make this request he should surely
17 say, "Now, I would like some time to do that." Then
18 we can tell the panel not to come back until Tuesday
19 morning, or whatever, and we can debate it, but to
20 ask these distinguished gentlemen and the other
21 counsel to sit through what is, even he concedes,
22 a housekeeping matter, is, I think, a waste of time.
23 -- And we haven't got much.

24 MR. MARSHALL: Well,
25 sir, unaccustomed as I am to interjecting in these
26 matters, my initial reaction was to suggest that
27 perhaps this was a subject that could be referred to
28 the community hearings committee, and I thought that
29 some might take that as being a facetious remark.

30 THE COMMISSIONER: It hasn't

1 held a lot of meetings lately, is that what you
2 suggest? But the hearings have been held --

3 MR. MARSHALL: I think this
4 is quite bit to spring on us and I really don't feel
5 that I could address the issue that has been raised
6 now. I would like to think about it and perhaps
7 discuss it with Mr. Veale and Mr. Scott before res-
8 ponding to it.

9 THE COMMISSIONER: Well, can
10 I offer one or two thoughts. One is that I have been
11 troubled by this whole Fairbanks thing because it
12 seems to me that it may well be beyond the terms of
13 reference of the Inquiry, and yet the pace of events
14 has a tendency to alter the things that we are
15 looking at here. I said when I left Whitehorse that
16 if there were reason to return, and the reason I
17 gave was, and the reason I suggested might appear was
18 if the Fairbanks corridor appeared to be something that
19 should be considered more seriously, then we were willing
20 to consider it at that time, then I would return.
21 But as Mr. Scott rightly points out, there is a question
22 relating to the terms of reference of the Inquiry to
23 start with.

24 Then, putting aside those
25 questions of our schedule and expense, it seems to me
26 that if we were to look into it, we would have to do
27 it properly and not try to do it on the cheap, but there
28 is the question of the procedure you propose and I think
29 that it is one that counsel should take a look at. It
30 occurs to me offhand, in fairness, representatives of

1 the industry -- I say the industry, because none of
2 these people here want to build a pipeline -- but
3 maybe they would be willing to send one or two persons
4 along with Professor Jackson and a representative
5 of the Council of Yukon Indians, if in the fullness
6 of time the procedure you propose were to be
7 adopted.

8 At any rate, that is all I
9 have to say on it, and I suggest, Mr. Scott, that since
10 Mr. Veale isn't with us, I take it for more than another
11 day or two, that you might have a meeting of counsel
12 tonight, at noon tomorrow, or tomorrow evening to
13 discuss these things.

14 MR. MARSHALL: That certainly
15 would be fine with me, sir.

16 MR. VEALE: And with me,
17 sir.

18 MR. SCOTT: I would propose
19 that we should meet at five o'clock tonight to
20 discuss this matter.

21 MR. MARSHALL: That is fine,
22 sir. Well, we can meet in my office if it is
23 convenient.

24 MR. SCOTT: No, I am not
25 satisfied with that. That is an unruly place for
26 meetings and we will meet right here.

27 THE COMMISSIONER: All
28 right. Well, any other items of business? Because
29 I think if you aren't you are going to have that meeting
30 at a quarter to five. Go ahead, Mr. Veale.

1 MR. VEALE: Mr. Commissioner,
2 there is another matter which I don't know whether
3 to bring it up now. Mr. Scott had indicated that he
4 would rather deal with it in meetings, but it was
5 brought up before the Inquiry at a previous date
6 a month ago and I have had no word since and that
7 relates to the Miller report --

8 THE COMMISSIONER: To the
9 what?

10 MR. VEALE: The Miller
11 Report on Ross River --

12 THE COMMISSIONER: Oh, the
13 Miller Report.

14 MR. VEALE: Now, as I
15 understand it, when the matter was left the last
16 time I was over here, Mr. Scott was going to determine
17 whether or not certain portions of the report could
18 be run over with a felt pen so that the report could
19 be released in 98% of its entirety, and I have
20 heard nothing about that since.

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1 MR.SCOTT: The Miller
2 Report, as you will remember, sir, is a report written
3 by a young anthropologist with the Department of
4 Indian Affairs about his village, in which he speaks
5 directly about matters in his village and I am
6 satisfied, and the department is concerned, that to
7 release the report in its present form -- it was
8 considered unsuitable for publication, whatever that
9 means -- would damage the future of this young
10 man and would expose him to perhaps some embarrassment.
11 We were contemplating trying to edit the report in
12 such a way that its thrust would remain but yet personal
13 references would be withdrawn. That's being considered.
14 Unfortunately, I left the report back in Toronto so
15 I'm afraid nothing can be done about it this week.
16 I'll try and get it here next week.

17 THE COMMISSIONER : Not so good,
18 eh, Mr. Veale?

19 MR. VEALE: Well, I'm not
20 impressed.

21 MR. SCOTT: I will regard that
22 as beside the point.

23 MR.MARSHALL: You can put it
24 in the mail, Mr. Scott.

25 MR. VEALE: The concern I have,
26 Mr. Commissioner, is that Mr. Scott has indicated that
27 it may be necessary to have a motion relating to the
28 production of the report, and the phase 4 is coming
29 upon us and the motion is not held and the matter
30 drifts on, and I would like to have it --

MR. SCOTT: Well, Mr. Commissioner, I will attempt to expedite it. The problem is that the author of the report, if the author of the report would say, "I consent to its release and will bear any burdens associated with it," that would end the matter, it would simply be released. For some reason he can't be contacted, I gather, and the matter therefore falls to be decided by the department and by us, and it's not a trivial matter from the point of view of the young professional, I don't think, and we'll give it our best consideration and hope to have something for my friend in a week or so.

THE COMMISSIONER: How long are you with us this trip, Mr. Veale?

MR. VEALE: I intend to leave tomorrow afternoon. But I also intend to return at least for the third week, December 11th, at least when the caribou panel --

THE COMMISSIONER: Yes, well then you'll be back later this month and you said --

MR. VEALE: That depends when the caribou panel is here.

THE COMMISSIONER: And somebody here, I think it was Mr. Hollingworth said that the F.P.C. staff had just published a statement about the Fairbanks route. I think it would be nice for us to have some confirmation of what they said, and the status of that route before the United States tribunal, before deciding whether we should have a long discussion here of, at least taking up the time of the Inquiry

1 before we have that.

2 Well, all right, I think that's
3 enough for today. Can we adjourn till 9:30 A.M. tomor-
4 row?

5 MR. MARSHALL: That's fine with
6 me, sir.

7 (PROCEEDINGS ADJOURNED TO DECEMBER 4, 1975)

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